EXHIBIT A

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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POP TOP CORP.,

Plaintiff,

v.

NOOK DIGITAL, LLC,

Defendant.

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Case No. 1:20 cv 06598 (VSB)

Declaration of Matthew M. Wawrzyn re Comparison of U.S. Patent No. 8,910,060 to U.S. Patent No. 10,866,713

1. My name is Matthew Michael Wawrzyn. I am over the age of 18 and I declare the following facts based on my personal knowledge and under the penalty of perjury.

2. I represent Pop Top Corp. in this patent-infringement action against Nook Digital, LLC. In correspondence attached hereto as "Exhibit 1," Nook asserted that the patent-in-suit (10,866,713) is entitled to a 2019 March 14 priority date. Nook states this position as follows: "The application for the '713 Patent was filed as a continuation-in-part on March 14, 2019 (Appl. No.: 16 /354,017), adding new matter. None of the earlier-referenced applications purports to disclose the alleged invention. The March 2019 application thus governs and supplies the critical date for purposes of prior art." (*Id.* at 3 n.1.)

3. The '713 Patent claims priority to an application that became U.S. Patent No. 8,910,060 (the "'060 Patent") and a provisional patent application that was filed on June 22, 2006. ('713, col. 1:7-14.)

4. On March 18, 2011, during prosecution of the '060 Patent, the examiner rejected the claims based on 35 U.S.C. § 112(1)—enablement. (*See* excerpt from the file history attached hereto as "Exhibit 2.")

5. On February 7, 2014, during prosecution of the ’060 Patent, the examiner rejected the claims based on 35 U.S.C. § 112(2)—indefiniteness. (*See* excerpt from the file history attached hereto as “Exhibit 3.”)

6. Ultimately, these section 112 rejections were overcome. On September 17, 2014, an examiner’s amendment put the claims of the ’060 Patent in a condition to be allowed. (*See* excerpt from the file history attached hereto as “Exhibit 4.”)

7. The prosecution of the ’713 Patent was free of any rejections based on section 112. Instead, on October 30, 2020, an examiner’s amendment put the ’713 Patent claims in a condition to be allowed. (*See* excerpt from the file history attached hereto as “Exhibit 5.”)

8. The ’060 Patent is attached hereto as “Exhibit 6.”

9. The ’713 Patent is attached hereto as “Exhibit 7.”

10. The specification of the ’060 Patent is the same as the specification of the ’713 Patent, except for the differences reflected in the comparison document attached hereto as “Exhibit 8.”

Date: March 17, 2022

Place: Glenview, Illinois /s Matt Wawrzyn

EXHIBIT 1

STRIS & MAHER LLP

ELIZABETH BRANNEN
(213) 995-6809
(213) 261-0299 (fax)
elizabeth.brannen@strismaher.com

March 30, 2021

VIA EMAIL

Matthew M. Wawrzyn
Wawrzyn LLC
200 Randolph Street, Suite 5100
Chicago, IL 60601

Re: *Pop Top Corporation v. Nook Digital, LLC*, No. 1:20-cv-06598 (S.D.N.Y.)

Dear Matt:

In advance of Nook Digital's April 2, 2021 response deadline, I write to reiterate that Pop Top should dismiss this case.

Background

On February 4, 2021, when Pop Top had asserted only a single patent in this case, I wrote to reiterate several points from our discussions and to explain in writing the basis of my client's request for Pop Top to dismiss its complaint. I did not hear back.

Instead, on March 5, 2021, Pop Top filed a first amended complaint (FAC). The FAC did not address deficiencies in Pop Top's infringement allegations on the first patent (U.S. Patent No. 7,966,623), and added allegations concerning a second patent (U.S. Patent No. 10,866,713) that are equally without merit.

By way of this letter, Nook Digital is providing notice to Pop Top that Pop Top's positions are legally and factually without merit and that Pop Top has no viable infringement claim on either patent. As detailed further below, the allegations concerning the '623 Patent demonstrably lack factual support. The allegations concerning the '713 Patent accuse NOOK functionality that pre-dates the alleged invention by nearly a decade. Pop Top thus cannot assert infringement without invalidating the '713 Patent.

'623 Patent

Our February 4, 2021 letter and Rule 12(c) Motion identified multiple '623 Patent limitations that Pop Top has not and cannot plausibly allege that BN.com (or anyone) ever performs by offering or using the NOOK App.

The FAC does not rectify the deficiencies we identified. It rests on wholly conclusory allegations that are unfounded and inaccurate. For example:

- "The [NOOK] App includes a highlighting service hosted by a highlighting server. The App's highlighting service server is different than the content server that served the eBook." Am. Compl. ¶ 16.
- "When a user wants to highlight a section of the book running on the App, the App sends a request to the highlighting server" and that request "contains an address of the internet document." *Id.* ¶ 17.

There is no "highlighting server" that hosts a "highlighting service." There also is no such server that is "different than the content server that served the eBook." When a NOOK user wants to highlight text, the App does not send any requests to a highlighting server, much less a request that includes the address of an internet document.

Pop Top has no reasonable basis for making these allegations. As Pop Top must know, NOOK highlighting works with no internet connection. The highlighting functionality thus does not involve any "server."

Notably, Pop Top's new allegations regarding the NOOK App in Count 2 directly contradict its allegations regarding a highlighting server in Count 1. In Count 2, Pop Top asserts infringement of claims directed to highlighting based upon "executable software stored in the in-built memory of the device," where the software is "operative with a processor of the device," and does not "require the user to install any additional software components." ¶¶ 22-24. Pop Top alleges that the App itself is software that "includes a tool, which allows the reader . . . to highlight portions of the text." ¶ 25. These allegations in Count 2 underscore that Pop Top's allegations about a "highlighting service server" lack any factual basis.

Pop Top also has no plausible basis to allege that any "highlighting service server" that is different from the "content server" stores a NOOK user's highlights. The final step of the '623 Patent requires storage by such a server. The FAC alleges only that users' notes and highlights are stored in an unspecified location. Pop Top has not alleged, and there is no conceivable basis to allege, that Nook Digital stores them in the requisite "highlighting service server," which does not exist. Pop Top should immediately dismiss this claim.

'713 Patent

Pop Top alleges infringement of the '713 Patent based on the following factual allegations:

- the NOOK App runs on a user's NOOK Device;
- the App allows a user to download eBooks, to highlight portions of the text, and add notes;
- the highlighting and notes are associated with the user's Library, and can be accessed from other devices running the App; and
- users may share highlights with others.

These allegations are insufficient to infringe the claims of the '713 Patent, but if they were, Pop Top would succeed only in invalidating the patent. As Pop Top's pre-suit investigation should have revealed, the '713 Patent's named inventor, Mr. Chandra, did not invent these capabilities: NOOK had the accused functionality long before Mr. Chandra's invention date.[1] Pop Top cannot take the position that this NOOK functionality from a decade ago would infringe without invalidating the claims of the '713 Patent. "[T]hat which infringes if later anticipates if earlier." *Polaroid Corp. v. Eastman Kodak Co.*, 789 F.2d 1556, 1573 (Fed. Cir. 1986) (*citing Peters v. Active Mfg. Co.*, 129 U.S. 530, 537 (1889)).

Readily available documentation from Barnes & Noble and third-parties confirms that NOOK had the accused functionality before the earliest supported invention date of the '713 Patent claims—years before. This letter quotes representative sources; a reasonable pre-filing inquiry would have revealed the critical information from these representative sources or other sources.

Here, for example, are links to videos demonstrating NOOK highlighting capability from 2010 and 2011:

- https://www.youtube.com/watch?v=po9EY91OD38 (at approximately 5:30)
- https://www.youtube.com/watch?v=O7STSgPDDRk (at approximately 1:45)
- https://www.youtube.com/watch?v=FysQB6Zh_KY (at approximately 1:00)
- https://www.youtube.com/watch?v=UEJLYaQzPvc (at approximately 7:30)

The 2009-10 User Guide[2] makes clear that the NOOK had highlighting, notes, and sync functionality. It explains how you can "bookmark, highlight, and annotate the eBooks that you read." NOOK User Guide, Version 1.5 at 137-140. "Highlight interesting passages. Add your own notes." *Id.* at 137. And "[y]our annotations, highlights, and bookmarks remain in the eBook." *Id.*

NOOK has long had a sync function that uses Wi-Fi to sync the user's device with their "online digital library." *Id.* at 24. A 2010 review points out that: "NOOK for iPhone also quickly syncs users' entire library, current reading position, notes, highlights and bookmarks with other NOOK software-enabled devices."[3] As a 2011 published review comparing Kindle and NOOK explained, "both [devices] let you make notes that sync to the cloud, so you can check them later from any device."[4]

[1] The application for the '713 Patent was filed as a continuation-in-part on March 14, 2019 (Appl. No.: 16 / 354,017), adding new matter. None of the earlier-referenced applications purports to disclose the alleged invention. The March 2019 application thus governs and supplies the critical date for purposes of prior art.
[2] Available at: http://images.barnesandnoble.com/pimages/nook/download/User_Guide_NOOK_v1_5.pdf?cds2Pid=47982
[3] Matt Burns, B&N Rebrands and Updates Its iPad, iPhone, , and PC Nook eReading Software, techcrunch.com (Aug. 17, 2010), https://techcrunch.com/2010/08/17/nook-for-ipad-nook-for-iphone-nook-for-pc/ .
[4] Wilson Rothman, Kindle vs. Nook: $99 e-ink touch readers face off, nbcnews.com (Nov. 15, 2011), https://www.nbcnews.com/technolog/kindle-vs-nook-99-e-ink-touch-readers-face-119062 .

In addition, the 2010-11 User Guide[5] noted the ability to share text passages on social media or through email: "You can share a highlighted passage with friends through email, Facebook or Twitter." Nook User Guide, Version 1.0.0.E at 45.

In connection with introducing NOOK to Europe in 2012, Barnes & Noble issued a press release that promoted the accused functionality:

> "Smart NOOK Sync™ technology means that customers can also automatically sync their entire library on the go, including last page read, bookmarks, notes and highlights across all of their devices. Start a book on a NOOK tablet or eReader and seamlessly pick back up on an iPad, iPhone, iPod touch or Android smartphone or tablet to keep reading anytime, anywhere – all without losing the page."[6]

As stated in NOOK marketing material in 2012, NOOK apps allow users to: "Read your favorite books, magazines and more on your tablet, mobile phone or computer. Sync your current reads across devices and take them with you wherever you go."[7]

Clearly, neither Nook Digital's devices or App infringe the '713 Patent. If this case proceeds, Nook Digital will of course vigorously defend on all relevant grounds. Please be aware, however, that while Pop Top takes the position that the highlighting and notes functionality described above are sufficient to infringe multiple claims of the '713 Patent, that functionality long predates the patent application. As a result Pop Top cannot accuse Nook Digital of infringement without invalidating its patent. *See, e.g.*, *WPEM, LLC v. SOTI Inc.*, 837 Fed. Appx. 773 (Fed. Cir. Dec. 9, 2020) (affirming fee award).

Pop Top should accordingly dismiss the pending suit in its entirety. If you or your client is inclined instead to proceed, please let me know when you are available to meet and confer. If Pop Top continues to pursue these claims, Nook Digital reserves all rights and remedies including to seek an award of costs and legal fees pursuant to 28 U.S.C. § 1927, 35 U.S.C. § 285, and any other applicable authority, and to seek sanctions as appropriate.

Sincerely,

Elizabeth Brannen

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[5] Available at: http://img1.imagesbn.com/PImages/nook/2/mediakit/userguide_NOOK_110601.pdf?cds2Pid=47982

[6] *See* https://www.businesswire.com/news/home/20121127005451/en/Barnes-Noble-Introduces-Free-NOOK%C2%AE-for-Android%E2%84%A2-and-NOOK-for-iOS-Reading-Apps-in-UK; *see also* https://www.businesswire.com/news/home/20130822005244/en/Special-Limited-Time-Offer-from-NOOK%C2%AE-Get-Free-Bestselling-eBooks-and-Magazines-with-Download-of-Free-NOOK-Reading-Apps%E2%84%A2-for-iOS-and-Android (similar); https://www.engadget.com/2012-11-27-nook-app-ios-android-update-uk.html (similar).

[7] https://web.archive.org/web/20120808182035/http:/www.barnesandnoble.com/u/free-nook-apps/379003593

EXHIBIT 2

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/766,786	06/21/2007	Rohit Chandra	12000002-0002-002	1034

26263 7590 03/18/2011

SNR DENTON US LLP
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CHICAGO, IL 60606-1080

EXAMINER	
TRAN, TUYETLIEN T	
ART UNIT	**PAPER NUMBER**
2179	
MAIL DATE	**DELIVERY MODE**
03/18/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/766,786	CHANDRA, ROHIT	
	Examiner	Art Unit	
	TUYETLIEN T. TRAN	2179	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the following communication: Amendment filed on 01/12/11.

This action is made final.

2. Claim 18 is pending and is an independent claim.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. According to the instant specification, the limitation of "relaying the internet document to the client web browser along with executable or interpretable code" does not include the feature of "the highlighting server thereafter receiving from the content server the requested internet document, analyzing the internet document" as recited in lines 8-10 of the claim. As shown in paragraph [0028] of the published application (see PGPub 20080016091), the requested document is communicated from the highlighting server to the client web browsers in its original unmodified form, along with the code module is in one embodiment of the invention where the requested document is modified at the client browser. The feature of analyzing the internet document belongs to another embodiment where the requested document is modified at the server and the modified document is then relayed to the client browser (see Fig. 2 and [0036], [0037] of the published application).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams (US 2007/0234209 A1; hereinafter Williams) in view of D'Amico (US 20040205541; hereinafter D'Amico).**

As to claims 18, Williams teaches:

A computer-implemented method (e.g., see [0008]; method for highlighting content), comprising:

at a highlighting server hosting a highlighting service, receiving a request from a client web browser for an internet document hosted at a content server (e.g., see Fig. 1 and [0072]; the content viewer submit the resource identifier to the highlight server 102), the request, although being directed to the highlighting server, including a content server address for the internet document (see [0072], [0077]; resource identifier for content);

the highlighting server analyzing the request, extracting the content server address for the internet document from the request, and subsequently forwarding the request for the internet document to the content server (see and [0072], [0077]; the highlighting server proceed to retrieve the content identified by the resource identifier);

the highlighting server thereafter receiving from the content server the requested internet document, analyzing the internet document, (se [0072], [0077]; the content identified by the resource identifier; the internet document can be analyzed and modified at the server), and relaying the internet document to the client web browser along with highlighting data (e.g., see [0072], [0073]; the requested content and highlighting data).

William teaches executable or interpretable highlighting code at the client web browser is operable to query the highlighting server for the highlight data associated with objects within the internet document (e.g., see [0028], [0072], [0073]; request for aggregated highlighting information); and,

the highlighting server, responsive to a query by the highlighting code, determining whether or not the internet document has been previously highlighted (see [0072], [0077]; query highlighting data associated with the requested document), and, if so, communicating one or more highlights to the highlighting code so as to enable the highlighting code to manipulate the internet document to display highlighted objects within the internet document (e.g., see Fig. 4 and [0033], [0073]-[0076]; the content with highlighting code process the highlight information to add appropriate highlights to the content) according to user-configurable settings of a highlight filtering mechanism of the highlighting code (see [0061]-[0063]; the user is given color palette or button/control to indicate level of importance; thereby effect the display of the highlighting information).

While Williams teaches the executable or interpretable highlighting code can be implemented or running locally on the user's client device (see [0073]), Williams does not expressly teach the highlighting code is relayed to the client web browser along with the requested document from the highlighting server.

In the same field of endeavor, D'Amico teaches a web browser with an annotation tool without the traditional add-ins (e.g., see [0013]). The annotation tool comprises highlight tool (e.g., see [0017]). With regarding to claim 1, D'Amico teaches a server configured to send the request document along with highlighting code (e.g., see [0040], [0041]; second set of data is annotation tool which includes executable highlighting code).

Accordingly, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the highlighting tool of Williams to have it stored in the server and delivered to the client along with the requested document as suggested by D'Amico to achieve the claim limitation. As suggested by D'Amico, one would be motivated to make such a combination is to develop an annotation tool including highlighting tool for a web browser without the need of add-ins (e.g., see D'Amico [0010]).

Response to Arguments

5. Applicant's arguments filed on 01/12/2011 have been considered but are not persuasive.

- Applicant argues that the combination of William and D'Amico does not teach filtering is performed according to user-configurable settings of a highlight filtering mechanism of the highlighting code provided to the client web browser (see Applicant's remark page 5, paragraph 3).

In response, the examiner respectfully disagrees. Williams teaches the executable or interpretable code can be implemented or running locally on the user's client device (see [0073]). Williams teaches the user is given control or palette to indicate a level of importance of the highlighting content, the level of importance may be taken into account when the prominence data for the highlighted content is modified (see [0061]-[0063]). Williams teaches the highlighting information is modified in real time (see [0070]). Therefore, Williams is

interpreted to teach filtering is performed according to user-configurable settings of a highlight filtering mechanism of the highlighting code of the client web browser.

As set forth in the rejection of claim 18, while Williams teaches the executable or interpretable highlighting code can be implemented or running locally on the user's client device (see [0073]), Williams does not expressly teach the highlighting code is relayed to the client web browser along with the requested document from the highlighting server. However, this deficiency is taught by D'Amico as addressed supra.

For at least these reasons, the examiner concludes that the combination of Williams and D'Amico teaches filtering is performed according to user-configurable settings of a highlight filtering mechanism of the highlighting code provided to the client web browser as claimed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

It is noted that any citation to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would

have reasonably suggested to one having ordinary skill in the art. In re Heck, 699 F.2d 1331, 1332-33,216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006,1009, 158 USPQ 275,277 (CCPA 1968)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TuyetLien (Lien) T. Tran whose telephone number is 571-270-1033. The examiner can normally be reached on Mon-Friday: 7:30 - 5:00 (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on 571-272-4847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TuyetLien T Tran/
Examiner, Art Unit 2179

EXHIBIT 3

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/766,786	06/21/2007	Rohit Chandra	12000002-0002-002	1034

47349 7590 02/07/2014

ROHIT CHANDRA
987 ROSA CT
SUNNYVALE, CA 94086

EXAMINER	
TRAN, TUYETLIEN T	
ART UNIT	**PAPER NUMBER**
2179	
MAIL DATE	**DELIVERY MODE**
02/07/2014	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 11/766,786	Applicant(s) CHANDRA, ROHIT	
	Examiner TUYETLIEN TRAN	Art Unit 2179	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/27/13*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *25-48* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *25-48* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the following communication: The amendment filed on 09/27/13. **This action is made Non-Final**.

2. Claims 25-48 are pending in the case. Claims 25, 31, 46 and 48 are independent claims.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

5. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/27/2013 has been entered.

Election/Restrictions

6. Amended claims 25-48 are directed to the embodiment where the highlight code is received from the server and the highlight data is requested from browser client. Based on the amendment filed on 9/27/2013; cancelled claims 1-17, 24 are no longer distinct from the amended claims.

Because all claims 1-17, 24 previously cancelled from consideration are no longer distinct from the amendment claims, **the restriction requirement as set forth in the Office action mailed on 05/05/2010 is hereby withdrawn**. In view of the withdrawal of the restriction requirement as to the rejoined inventions, applicant(s) are advised that if any claim presented in

a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Claim Rejections - 35 USC § 112

7. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims **25-30 and 47** are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 25 recites the limitation "the querying code" in 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 also recites the limitation “the highlighting code” in line 8. It is not clear what highlighting code this limitation refers to: "the same highlighting code" or “another highlighting code” recited in 5.

Claims 26-27 recite similar limitation “the highlighting code” which lacks of antecedent basis because it is not clear what highlighting code this limitation refers to: "the same highlighting code" or “another highlighting code” recited in 5 of claim 1.

Claims 28-30 are rejected as incorporating the deficiencies of a claim upon which it depends.

9. Regarding claim 47, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102 and 103

10. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claim 48 is rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Williams (US 2007/0234209 A1; hereinafter Williams).

As to claim 48, Williams teaches:

A computer-implemented method (see [0007]), comprising:

serving up a web page in a manner causing portions of the web page to be highlighted in various colors (see Figs. 2A, 2B and [0040], [0052]), wherein each particular color represents a measure of the frequency with which that portion of the internet document has been highlighted

by users of a highlighting service (see [0042], [0043], [0052]; colors are used to represent highlighted content such as prominent, strength. The low strength of the highlight is the result of only a few users or one user who has highlighted the particular content while high strength of the highlight is the result of many users who highlighted the particular content).

12. Claims 25-41, 43, 44, 46, 47 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Watanabe et al. (USPN 2003/0081000 A1; hereinafter as Watanabe), or in the alternative, are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Williams (US 2007/0234209 A1; hereinafter Williams).

As to claim 25, Watanabe teaches:

A computer-implemented method (see [0013]), comprising:

at a highlighting server (see Fig. 7 and [0010], [0048]; HTTP request is transmitted to the intermediate server 10), receiving a request from a user's client web browser (see Fig. 7 and [0048]; S702), respective to an internet document hosted at a content provider (see Fig. 7 and [0048]; web page or request content from Web Server 40);

relaying at least a portion of the internet document to the client web browser along with a highlighting code (see Fig. 7 and [0010], [0050]; S712 - the intermediate server caches the digital contents and transmits them to the client terminal along with an annotation tool being a program for adding annotation information), wherein the same or another highlighting code, queries for highlights associated with portions of the internet document (see [0056]; a program for implementing the embedding operation is also transmitted to the terminal a long with the annotation information);

communicating one or more highlighted portions to the querying code so as to enable the highlighting code to manipulate the internet document to display the highlighted portions

within the internet document (see [0056], [0057]; the program enables for reproducing or displaying annotation information).

Watanabe's annotation feature is interpreted to be highlighting feature. Even if it is not interpreted as such, Williams is relied upon for teaching the highlighting feature. Williams teaches web-based highlighting feature configured to allow the user to highlight on a Web content (see Fig. 2A). Williams teaches the highlighting feature includes commenting or annotation (see [0050]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the annotation tool of Watanabe to include the highlight feature as suggested by Williams to achieve the claim limitation. As suggested by Williams, one would be motivated to make such a combination is to allow the user to highlight web content (e.g., see Williams [0004]).

As to claim 26, Watanabe teaches: wherein the highlighting code includes intelligent highlight insertion logic to determine where in the internet document a highlight is to be positioned, when the internet document has changed since the time the highlight was originally made (see [0063]). Williams also teaches this limitation (e.g., see [0010], [0035]-[0037], [0041]; x and y position of the highlights).

As to claim 27, Williams teaches the highlighting code includes a highlighter filtering mechanism enabling a user to selectively filter highlights to be displayed based on various highlight characteristics (e.g., see [0038]; the user can decide to view the content with only the highlights personally generated for by the user).

As to claim 28, Williams teaches the highlight characteristics utilized to filter the highlights displayed to a user include: source of a highlight; time of highlight; rating of a

highlight; number of comments associated with a highlight; user group of highlight; and/or source of comments associated with a highlight (e.g., see [0038], [0046]; the user can decide to view the content with only the highlights personally generated for by the user – interpreting as source of highlight).

As to claim 29, Watanabe teaches prior to relaying the internet document to the client web browser, modifying one or more object references included in the internet document so that a subsequent request for an object associated with the one or more object references is directed to the highlighting server (see Fig. 8 and [0055], [0056]; transmitting reproducing URL to self or other users to access annotation information). Williams further teaches this limitation (e.g., see [0072]; requests from the browsers are through highlighting server and the requested content is modified at the server).

As to claims 30, Watanabe teaches prior to relaying the internet document to the client web browser, forwarding the request to the content provider and, in turn, receiving the internet document from the content provider (see Fig. 7). Watanabe teaches prior to relaying the internet document to the client web browser, modifying one or more object references included in the internet document so that a subsequent request for an object associated with the one or more object references is directed to the highlighting server (see Fig. 8 and [0055], [0056]; transmitting reproducing URL to self or other users to access annotation information).

Williams further teaches prior to relaying the internet document to the client web browser, forwarding the request to the content provider and, in turn, receiving the internet document from the content provider (e.g., see Fig. 1 and [0072]; the highlighting server retrieves of the content from the content server); and, modifying one or more object references included in the internet document so that a subsequent request for an object associated with the one or

more object references is directed to the highlighting server (e.g., see [0072]; requests from the browsers are through highlighting server and the requested content is modified at the server).

As to claim 31, Watanabe teaches:

A computer-implemented method (see [0013]), comprising:

at a highlighting server (see Fig. 7 and [0010], [0048]; HTTP request is transmitted to the intermediate server 10), receiving a request from a user's client web browser respective to a document hosted by another content provider (see Fig. 7 and [0048]; S702 - web page or request content from Web Server 40);

enabling the user to manually select a portion of the document to highlight (see [0051]; a user designates a position on the web page where the user wishes to insert annotation information), and making the highlight using an internet based service (see [0051]), without installing a custom software component on the client browser (see [0050]; the user can obtain the annotation tool without the need to have a special tool beforehand).

Watanabe's annotation feature is interpreted to be highlighting feature. Even if it is not interpreted as such, Williams is relied upon for teaching the highlighting feature. Williams teaches web-based highlighting feature configured to allow the user to highlight on a Web content (see Fig. 2A). Williams teaches the highlighting feature includes commenting or annotation (see [0050]). Thus, combining Watanabe and Williams would meet the claim limitations for the same reasons as set forth in claim 25 above.

As to claim 32, Watanabe teaches enabling the user to selectively make a highlight includes saving the highlight to a centralized repository (see [0055]; the annotation keeping section 132 of the intermediate server 10 stores the received annotation data in the annotation DB 158). Williams also teaches this limitation in Fig. 1 (Highlight Database 104).

As to claim 33, Watanabe teaches saving the highlight includes associating the highlight with the first user without requiring the user to create a new user account (see [0055]; the annotation keeping section 132 of the intermediate server 10 stores the received annotation data in the annotation DB 158 – the stored data is stored with session key which is not user account). Williams also teaches this limitation in paragraph [0068] (the highlight information can be stored without associating user's identity).

As to claim 34, Watanabe teaches saving the highlight enables any user to recall the highlight (see [0055]; any users can access the annotation information using the reproducing URL). Williams also teaches this limitation in paragraph [0071].

As to claim 35, Williams teaches enabling a second user to recall the highlight made by the first user during a web browsing session for which the second user has invoked a highlighting session (see [0047], [0064]), only if the second user has configured a highlight filtering mechanism to display highlights of the first user, or highlights of a group of which the first user is a member (see [0047], [0064]).

As to claim 36, Watanabe teaches: when an internet document associated with a particular URL has changed since the time the highlight was originally made, an intelligent highlight insertion logic is configured to identify where in the changed interact document the highlight is to be positioned (see [0063]). Williams also teaches this limitation (e.g., see [0010], [0035]-[0037], [0041]; x and y position of the highlights).

As to claim 37, Williams teaches wherein enabling a first user to selectively make a highlight on an object in a currently displayed internet document in a web browser includes enabling the first user to select one of a plurality of colors for each highlight (see [0062]).

As to claim 38, Watanabe teaches at a host providing a highlighting service, saving a copy of the internet document, including any objects that have been selectively highlighted by the first user so as to enable any user to retrieve a copy of the internet document as it appeared when a highlight was made (see [0055]). Williams also teaches this limitation (see [0037]).

As to claim 39, Williams teaches enabling any user to take a variety of user actions including: rate, comment on, mark as a favorite, flag for relevance, or copy, a highlight displayed within an internet document (see [0050]).

As to claim 40, Watanabe teaches enabling a user to subscribe to receive notifications of highlighting activity by another user, or group of users, wherein the notification is communicated to the user by any one of the following communication mechanisms: email, web page, RSS, SMS message, text message, telephone, or instant messaging service (see [0055]; notifies a resultantly obtained reproducing URL to the user of the client terminal 30b by email or the like).

As to claim 41, Williams teaches enabling a user to selectively indicate one or more highlights to be combined for display on a single internet document (see [0038], [0047], [0064]); and,

displaying the one or more highlights combined on a single internet document (see [0038], [0047], [0064]).

As to claim 43, Watanabe teaches assigning a unique URL to a subset of highlights specified by any user, so as to enable display of the subset of highlights on a single document (see [0055]). Williams also teaches this limitation as shown in Fig. 3.

As to claim 44, Watanabe teaches invoking a highlighting session by prepending an address associated with a highlighting service to an address of the internet document (see [0056]). Williams also teaches this limitation as shown in Fig. 2A.

As to claim 46, Watanabe teaches:

A computer-implemented method (see [0013]), comprising:

at a content selection server (see Fig. 7 and [0010], [0048]; HTTP request is transmitted to the intermediate server 10), receiving a request from a user's client web browser (see Fig. 7 and [0048]; S702), respective to an internet document hosted at a content provider (see Fig. 7 and [0048]; web page or request content from Web Server 40);

enabling the user to select a portion of the currently displayed internet document (see [0051]; a user designates a position on the web page where the user wishes to insert annotation information), without installing a custom software component and using an internet based service (see [0050]; the user can obtain the annotation tool without the need to have a special tool beforehand);

saving the user-selection to a centralized repository (see [0055]; the annotation keeping section 132 of the intermediate server 10 stores the received annotation data in the annotation DB 158).

Watanabe's annotation feature is interpreted to include selection a portion of the web content. Even if it is not interpreted as such, Williams is relied upon for teaching highlighting tool enabling the user to select a portion of the currently displayed internet document. Williams teaches enabling the user to select a portion of the currently displayed internet document (see [0034]). Thus, combining Watanabe and Williams would meet the claim limitations for the same reasons as set forth in claim 25 above.

As to claim 47, Williams teaches enabling another user to avail of a filtering mechanism to selectively filter content portions to be displayed based on various characteristics such as individual, group, rating and source of the user selected portion (e.g., see [0038], [0046]; the user can decide to view the content with only the highlights personally generated for by the user – interpreting as source of highlight).

13. Claim 42 is rejected are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe and/or Williams in view of Armstrong et al. (US 2005/0262438 A1; hereinafter as Armstrong).

As to claim 42, Watanabe and/or Williams teach the limitations of claim 41 as set forth above. Watanabe and/or Williams do not teach enabling the user to export the single internet document into a variety of different file formats.

Armstrong teaches enabling the user to export the single internet document into a variety of different file formats (see [0029], [0030]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the annotation tool of Watanabe and Williams to include the web page converting feature as suggested by Armstrong to achieve the claim limitation. One would be motivated to make such a combination to record information displayed in a web browser (e.g., see Armstrong [0008]).

14. Claim 45 is rejected are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe and/or Williams in view of Kamper (5982370; hereinafter as Kamper).

As to claim 45, Watanabe and/or Williams teach the limitations of claim 31 as set forth above. Watanabe and/or Williams do not teach the highlighting session is automatically invoked when a user selects a bookmarklet.

Kamper teaches the highlighting session is automatically invoked when a user selects a bookmarklet (see Fig. 5h and col. 8 lines 36-46; the sites in the bookmark or favorite can be located at some subsequent time).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the annotation tool of Watanabe and Williams to include bookmark feature as suggested by Kamper to achieve the claim limitation. One would be motivated to make such a combination to make it easier to locate the saved URL at some subsequent time (e.g., see Kamper col. 8 lines 36-46).

Response to Arguments

15. Applicant's arguments filed on 09/27/2013 have been considered but are moot in view of new ground of rejection.

Conclusion

The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action.

It is noted that any citation to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. In re Heck, 699 F.2d 1331, 1332-33,216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006,1009, 158 USPQ 275,277 (CCPA 1968)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TuyetLien (Lien) T. Tran whose telephone number is 571-270-1033. The examiner can normally be reached on Mon-Friday: 7:30 - 5:00, off on alternating Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on 571-272-4847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TuyetLien T Tran/

Primary Examiner, Art Unit 2179

EXHIBIT 4

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/766,786	06/21/2007	Rohit Chandra	12000002-0002-002	1034

13883 7590 09/17/2014

Inventus Law Patent
35 Miller Avenue
#166
Mill Valley, CA 94941

EXAMINER
TRAN, TUYETLIEN T

ART UNIT	PAPER NUMBER
2179	

DATE MAILED: 09/17/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	11/766,786	CHANDRA, ROHIT	
	Examiner	Art Unit	
	TUYETLIEN TRAN	2179	

All participants (applicant, applicant's representative, PTO personnel):

(1) *TUYETLIEN TRAN*. (3)_____.

(2) *Richard R. Peters (reg. 61,441)*. (4)_____.

Date of Interview: *08 September 2014*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *49-72*.

Identification of prior art discussed: *N/A*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

The examiner initiated the telephone communication to discuss Examiner's Amendment to put the case in condition for allowance. The Applicant's representative, Mr. Peters agreed to the claim amendment set forth in the attached Examiner's amendment action.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/TUYETLIEN TRAN/ Primary Examiner, Art Unit 2179	

Notice of Allowability	Application No. 11/766,786	Applicant(s) CHANDRA, ROHIT	
	Examiner TUYETLIEN TRAN	Art Unit 2179	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed on 06/20/2014*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *49-52*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date *09/08/2014* .
5. ☒ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TUYETLIEN TRAN/
Primary Examiner, Art Unit 2179

EXAMINER'S AMENDMENT

1. This action is responsive to the following communication: the claim amendment filed on 06/20/2014.

2. Claims 49-72 are pending. Claims 49, 55, 70 and 72 are independent claims.

3. The present application is being examined under the pre-AIA first to invent provisions.

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Nick Stevens with the approval from Mr. Richard R. Peters (Reg. No. 61,441) on 09/08/2014.

The application has been amended as follows:

Claim 49.

A computer-implemented method, comprising:

at a ~~content selection~~ highlighting server hosting a ~~content selection~~ highlighting service, receiving a request from a client web browser for an internet document hosted at a content server, the request, directed to the ~~content selection~~ highlighting server, including a content server address for the internet document,

the highlighting service providing a highlighting web portal includes a text entry box for receiving the request;

the ~~content selection~~ highlighting server extracting the content server address for the internet document from the request sent by the client web browser;

the ~~content selection~~ highlighting server thereafter relaying ~~at least a portion of~~ the internet document to the client web browser along with executable highlighting code; and,

the ~~content selection~~ highlighting server, responsive to a query from the executable highlighting code, processing the query to determine whether a uniform resource locator (URL) of the internet document is associated with any previously selected content portions, thereby determining whether or not the internet document has previously had portions of content selected by a user, and, if so, determining whether a current user viewing the internet document has configured ~~content selection~~ highlight filtering ~~means~~ mechanism to display any of the previously generated user ~~content portions~~ highlights, and, if so, communicating one or more ~~content portions~~ highlights to ~~the client web browser~~ the executable highlighting code so as to enable the internet document to display selected content portions within the internet document according to user configurable settings of ~~a content selection~~ the highlight filtering mechanism;

prior to relaying the internet document to the client web browser, forwarding the request to the content server and, in turn, receiving the internet document from the content server; and,

modifying one or more object references included in the internet document so that a subsequent request for an object associated with the one or more object references is directed to the highlighting server.

Claim 50.

The computer-implemented method of claim 49, wherein the ~~content selection~~ highlighting service includes intelligent ~~content portion~~ highlight identification logic to determine

where in the internet document a ~~content portion~~ highlight is to be positioned, when the internet document has changed since the time the ~~content portion~~ highlight was originally selected.

Claim 51.

The computer-implemented method of claim 49, ~~where, in the content selection highlighting service includes a content selection~~ the highlight filtering mechanism enabling a user to selectively filter ~~content portions~~ highlights to be displayed based on various characteristics.

Claim 52.

The computer-implemented method of claim 51, wherein the characteristics utilized to filter the ~~content portions~~ highlights to be displayed to a user include: source of a ~~content portion~~ highlight; time of ~~content portion selection~~ highlight; rating of a ~~content portion~~ highlight; number of comments associated with the ~~content portion~~ highlight; user group of ~~content portion~~ highlight; and/or source of comments associated with the ~~content portion~~ highlight.

Claims 53-72 are cancelled.

Allowable Subject Matter

5. Claims 49-52 are allowed.

The following is an examiner's statement of reasons for allowance:

Independent claim 1, when considered as a whole, is allowable over the prior art of record. Specifically, prior art of record fail to clearly teach or fairly suggest:

the highlighting service providing a highlighting web portal includes a text entry box for receiving the request;

the highlighting server extracting the content server address for the internet document from the request sent by the client web browser;

the highlighting server thereafter relaying the internet document to the client web browser along with executable highlighting code; and,

prior to relaying the internet document to the client web browser, forwarding the request to the content server and, in turn, receiving the internet document from the content server; and, modifying one or more object references included in the internet document so that a subsequent request for an object associated with the one or more object references is directed to the highlighting server.

The dependent claims further add limitations to the allowable subject matter of the corresponding independent claims; thus are also allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TuyetLien (Lien) T. Tran whose telephone number is 571-270-1033. The examiner can normally be reached on Mon-Friday: 7:30 - 5:00, off on alternating Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on 571-272-4847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TuyetLien T Tran/

Primary Examiner, Art Unit 2179

EXHIBIT 5

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/354,017	03/14/2019	ROHIT CHANDRA		5670

47349 7590 11/03/2020

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EXAMINER
MCINTOSH, ANDREW T

ART UNIT	PAPER NUMBER
2176	

MAIL DATE	DELIVERY MODE
11/03/2020	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Corrected ***Notice of Allowability***	**Application No.** 16/354,017	**Applicant(s)** CHANDRA, ROHIT	
	Examiner Andrew T McIntosh	**Art Unit** 2176	**AIA (FITF) Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to communications filed on March 14, 2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-2,4 and 6-23 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
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3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ANDREW T MCINTOSH/
Primary Examiner, Art Unit 2176

DETAILED ACTION

This action is responsive to communications filed on March 14, 2019.

Claims 1-20 are pending in the case.

Claims 1, 12, and 17 are independent claims.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Rohit Chandra on November 2, 2020.

Amend as Follows:

CLAIMS

What is claimed is:

1. (Amended) A personal digital device with an in-built memory, the device comprising:

executable software stored in the in-built memory of the device,

the software operative with a processor of the device,

without requiring the user to install any ~~specialized~~additional software components,

~~the software being executable on demand, and~~

the software ~~causing~~enabling the portable electronic device to display a document on a screen of the device[[;]],

wherein the document was retrieved from a content server on the Internet,

wherein the document was caused to be displayed on the screen of the device by utilizing at least a portion of the software,

[[and]] wherein the software is configured to provide a highlighting service to enable the user to create a highlight on at least one object of the document, ~~wherein the document was caused to be displayed on the screen of the device by a portion of the executable software,~~

wherein the highlighting service is visually invoked by a user initiated action,

wherein the software and/or the highlighting service is further configured to store the highlight, or a reference to the highlight, or a set of data associated with the highlight, created by the user in a storage connected to the Internet~~the in-built memory~~ along with a unique reference to the user who created the highlight, and a unique reference to the document that the highlight was created on, and

wherein, upon being invoked, the software and/or the highlighting service is furthermore configured to automatically retrieve ~~at least one highlighted object format~~ at least one of a ~~set of~~ previously ~~created~~ stored: (i) a highlight, (ii) a reference to a highlight, or (iii) a set of data associated with a highlight ~~highlighted objects stored in the in-built memory~~.

2. (Original) The device of claim 1, wherein the at least one ~~object of the document with~~ highlight[[s]] created by the user includes a portion of text.

3. (Cancelled)

4. The device of claim [[3]]1, wherein the storage connected to the Internet is at a server and shared by multiple users of the highlighting service using multiple distinct devices ~~software is configured to store in the memory, and wherein the memory is [[a]] another memory connected via the internet~~.

5. (Cancelled)

6. (Amended) The device of claim 1 further comprising database management logic for managing the storage~~memory~~, wherein the storage ~~memory~~ is at least one of: the built-in memory of the device and/~~and~~or the storage ~~memory~~ connected ~~via~~to the internet.

7. (Amended) The device of claim 6, wherein

the database management logic stores a ~~subset~~plurality of highlights ~~the highlighted object~~, ~~the~~ a plurality of object reference~~s~~ corresponding to the ~~highlight~~highlights, ~~and the~~or a plurality of set~~s~~ of data associated with the highlights~~highlighted object~~ in a database, wherein

the database management logic recalls a ~~another subset of the~~ subset of highlights, a plurality of object references corresponding to the highlights, or a plurality of sets of data associated with the highlights, from the database, and

provides the same, or ~~the~~ another subset ~~of the subset~~ so that the document can be manipulated in a manner that will display ~~the~~ one or more highlights when the document is displayed ~~on the screen of the device~~.

8. (Original) The device of claim 1, wherein the document is an eBook.

9. (Amended) The device of claim 1, wherein the software is a browser add-on ~~extension~~ which enables highlighting functionality for[[of]] a web browser application executing[[ed]] on the device.

10. (Amended) The device of claim 1, wherein the device includes displaying a collaboration panel which allows one or more users to collaborate on~~using~~ the document.

11. (Amended) The device of claim 1, wherein the executable software is received, in whole or in part, from a server connected to the [[i]]Internet.

12. (Amended) A computer-implemented method for highlighting functionality on a digital handheld device without requiring a user of the device to install a special software component, ~~and executable on demand,~~ the method comprising the steps of:

serving a document to the device, wherein the document was obtained from a content server connected to the Internet; and

displaying the document on a screen of the device by executing a software operative with

a processor of the device,

wherein the ~~executable~~ software ~~provides~~enables activation of the highlighting functionality on the device, and the highlighting functionality is visually invoked in response to an action initiated by the user,

wherein the highlighting functionality enables a user of the device to:

create a highlight on a portion of the document[[,]];

store the highlight, or a reference to the highlight, or a set of data associated with the highlight, created by the user in a memory with a unique reference to the user who created the highlight, and a unique reference to the document that the highlight was created on[[,]]; and

automatically restore a highlight on a portion of the document, upon the highlighting functionality being invoked.

13. (Amended) The method of claim 12 further comprising network and communications logic for transmitting at least one of the highlight ~~and~~or an associated set of data of the highlight to [[a]] at least one network connected server.

14. (Amended) The method of claim 13, wherein the at least one network connected server includes a page saving logic, wherein the page saving logic enables a user to save a copy of ~~the~~a portion of the document on the at least one network connected server or on another network connected server.

15. (Original) The method of claim 13, wherein a URL generating logic generates a unique URL to associate with the newly created highlight.

16. (Amended) The method of claim 12, wherein the ~~executable~~ software, in whole or in part, is fetched from a server connected to the [[i]]Internet.

17. (Amended) A ~~system~~non-transitory computer-readable medium having stored thereon, a set of computer-executable instructions for causing an eBook to enable highlighting, the ~~system comprising~~instructions executing on a processor of a portable electronic book device, wherein the device has executable software stored in a memory of the device[[,]] for

performing the steps of:

enabling a highlighting service on a currently displayed document,

wherein the currently displayed document was obtained from a content server connected to the Internet,

wherein the highlighting service is visually invoked upon an action initiated by the user, and enables a user of the currently displayed document to generate at least one new highlight, ~~and/or restore~~

wherein the highlighting service is configured to store the new highlight, or a reference to the new highlight, in a storage unit, and

wherein the highlighting service upon being invoked, is configured to automatically retrieve at least one previously generated highlight.

18. (Amended) The ~~system~~medium of [[C]]claim 17, ~~wherein the system~~ further comprising[[es]] the step of enabling a plurality of users to collaborate and view a multiplicity of ~~the~~ previously generated highlights on a set of one or more documents.

19. (Amended) The ~~system~~medium of [[C]]claim [[17]]18, further comprising the step of enabling a subset of the multiplicity of users to collaborate on a subset of the multiplicity of highlights using a set of [[i]]Internet connected devices.

20. (Amended) The ~~system~~medium of claim 17, wherein the executable software is stored in one or more parts at the following: on the device, and on at least one or more servers connected to the [[i]]Internet.

21. (New) The medium of Claim 17, further comprising instructions for database management logic wherein the storage unit is comprised of a combination of a built-in memory of the device and/or a storage connected to the Internet.

22. (New) The medium of claim 17, further comprising instructions for displaying a collaboration panel that allows one or more users to collaborate on the document.

23. (New) The method of claim 12, further comprising the step of providing an interface that enables a plurality of users to collaborate on a set of previously created highlights.

ALLOWABLE SUBJECT MATTER

Claims 1, 2, 4, and 6-23 are allowed.

After a thorough search and examination of the prior art, the Examiner has found the claimed subject matter to be allowable. The following is an examiner's statement for reasons for allowance:

Regarding Claim 1, this claims is directed to a device for highlighting. More specifically, the claimed invention includes software operative with a processor of the device, without requiring the user to install any additional software components, the software enabling a portable electronic device to display a document, wherein the document was retrieved from a content server, wherein the document was caused to be displayed on the screen of the device by utilizing at least a portion of the software, wherein the software is configured to provide a highlighting service to enable the user to create a highlight on at least one object of the document, wherein the highlighting service is visually invoked by a user initiated action. Further, the claimed invention includes wherein the software and/or the highlighting service is further configured to store the highlight, or a reference to the highlight, or a set of data associated with the highlight, created by the user in a storage connected to the Internet along with a unique reference to the user who

created the highlight, and a unique reference to the document that the highlight was created on, and wherein, upon being invoked, the software and/or the highlighting service is furthermore configured to automatically retrieve at least one of a previously stored: (i) a highlight, (ii) a reference to a highlight, or (iii) a set of data associated with a highlight.

Relevant prior art of record includes Barsness et al., US Patent Application Publication no. US 2004/0201633 ("Barsness"). Barsness teaches collaborative annotation functionality is provided, whereby annotation data such as contexts, comments and highlighting for a particular electronic document is associated with various users and displayed in connection with the display of such a document so as to indicate that different annotation data has been originated by different users. *Para. 0011*. Further, may be implemented using other handheld electronic devices that are capable of displaying text and/or images from an electronic document, e.g., personal digital assistants (PDA's), pagers, tablet computers, etc. *Para. 0024*. Further, highlight data, e.g., as represented by a plurality of highlight records 68 that define where in an electronic document highlighting should be applied. *Para. 0050*.

Barsness, alone or in combination with other prior art of record, fails to teach or fairly suggest software operative with a processor of the device, without requiring the user to install any additional software components, the software enabling a portable electronic device to display a document, wherein the document was retrieved from a content server, wherein the document was caused to be displayed on the screen of the device by utilizing at least a portion of the software, wherein the software is configured to provide a highlighting service to enable the user to create a highlight on at least one object of the document, wherein the highlighting service is visually invoked by a user initiated action,

wherein the software and/or the highlighting service is further configured to store the highlight, or a reference to the highlight, or a set of data associated with the highlight, created by the user in a storage connected to the Internet along with a unique reference to the user who created the highlight, and a unique reference to the document that the highlight was created on, and wherein, upon being invoked, the software and/or the highlighting service is furthermore configured to automatically retrieve at least one of a previously stored: (i) a highlight, (ii) a reference to a highlight, or (iii) a set of data associated with a highlight.

Accordingly, the subject matter of Claim 1 is allowable. The subject matter of claims 12 and 17 are allowable for substantially similar reasons.

Regarding claims 2, 4, 6-11, 13-16, and 18-23, these claims depend from claim(s) 1, 12, and 17, and are thus allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T McIntosh whose telephone number is (571)270-7790. The examiner can normally be reached on M-Th 8:00am-5:30pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kavita Stanley can be reached on 571-272-8352. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ANDREW T MCINTOSH/
Primary Examiner, Art Unit 2176

EXHIBIT 6

US008910060B2

(12) **United States Patent**
Chandra

(10) **Patent No.: US 8,910,060 B2**
(45) **Date of Patent: Dec. 9, 2014**

(54) **METHOD AND APPARATUS FOR HIGHLIGHTING A PORTION OF AN INTERNET DOCUMENT FOR COLLABORATION AND SUBSEQUENT RETRIEVAL**

(76) Inventor: **Rohit Chandra**, Sunnyvale, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 890 days.

(21) Appl. No.: **11/766,786**

(22) Filed: **Jun. 21, 2007**

(65) **Prior Publication Data**

US 2008/0016091 A1 Jan. 17, 2008

Related U.S. Application Data

(60) Provisional application No. 60/815,467, filed on Jun. 22, 2006.

(51) **Int. Cl.**

G06F 3/00	(2006.01)
G06F 17/22	(2006.01)
G06F 3/0481	(2013.01)
G06F 17/30	(2006.01)

(52) **U.S. Cl.**

CPC ***G06F 17/2247*** (2013.01); ***G06F 3/0481*** (2013.01); ***G06F 17/30884*** (2013.01)

USPC **715/760**; 715/751; 715/753; 709/204

(58) **Field of Classification Search**

CPC G06F 3/0481; G06F 17/30905

USPC 715/206, 760, 821, 751, 753; 709/204

See application file for complete search history.

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(Continued)

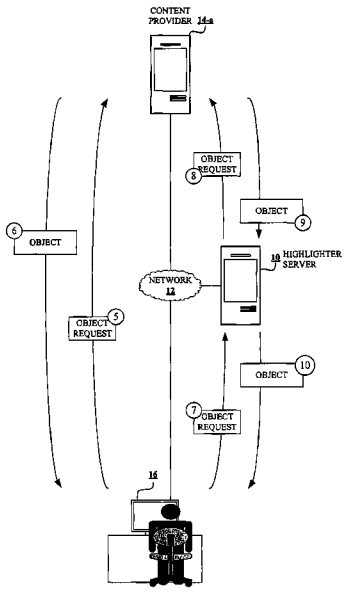
Primary Examiner — Tuyetlien Tran

(74) *Attorney, Agent, or Firm* — SNR Denton US LLP

(57) **ABSTRACT**

A method and system for enabling a user to selectively make one or more highlights on one or more objects in a currently displayed internet document in a web browser are disclosed. The highlighting functionality is enabled for the user without requiring the user to download and/or install custom software. Furthermore, it is not necessary for the user to register with the highlighting service providing the functionality. The user-generated highlights are persistent in the sense that they remain associated with, and are displayed on, the internet document during subsequent browsing sessions by the user or other users.

4 Claims, 14 Drawing Sheets



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7,996,396	B2	8/2011	Leblang et al.	
8,090,706	B2	1/2012	Bharat	
8,131,779	B2	3/2012	Jonker et al.	
8,150,824	B2	4/2012	Marmaros et al.	
8,195,772	B2	6/2012	Marmor	
8,276,061	B2	9/2012	Joshi et al.	
8,631,001	B2	1/2014	Lawrence et al.	
2001/0000537	A1	4/2001	Inala et al.	
2001/0044720	A1	11/2001	Lee et al.	
2001/0051987	A1	12/2001	Fukumoto et al.	
2002/0007379	A1	1/2002	Wang et al.	
2002/0023072	A1	2/2002	Stern et al.	
2002/0049738	A1	4/2002	Epstein	
2002/0059343	A1	5/2002	Kurishima et al.	
2002/0059369	A1	5/2002	Kern et al.	
2002/0065802	A1	5/2002	Uchiyama	
2002/0069296	A1	6/2002	Aua et al.	
2002/0076053	A1	6/2002	Hachimura	
2002/0129375	A1	9/2002	Kim et al.	
2003/0025731	A1	2/2003	Chastain et al.	
2003/0050927	A1	3/2003	Hussam	
2003/0081000	A1*	5/2003	Watanabe et al.	345/751
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2004/0205065	A1	10/2004	Petras et al.	
2004/0205541	A1*	10/2004	D'Amico	715/512
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2006/0004734	A1	1/2006	Malkin et al.	
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2006/0041625	A1	2/2006	Chen et al.	
2006/0048046	A1	3/2006	Joshi et al.	
2006/0053365	A1	3/2006	Hollander et al.	
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2006/0143236	A1	6/2006	Wu	
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2007/0250582	A1	10/2007	Sidhu et al.	
2008/0016169	A1	1/2008	Kaghazian	

* cited by examiner

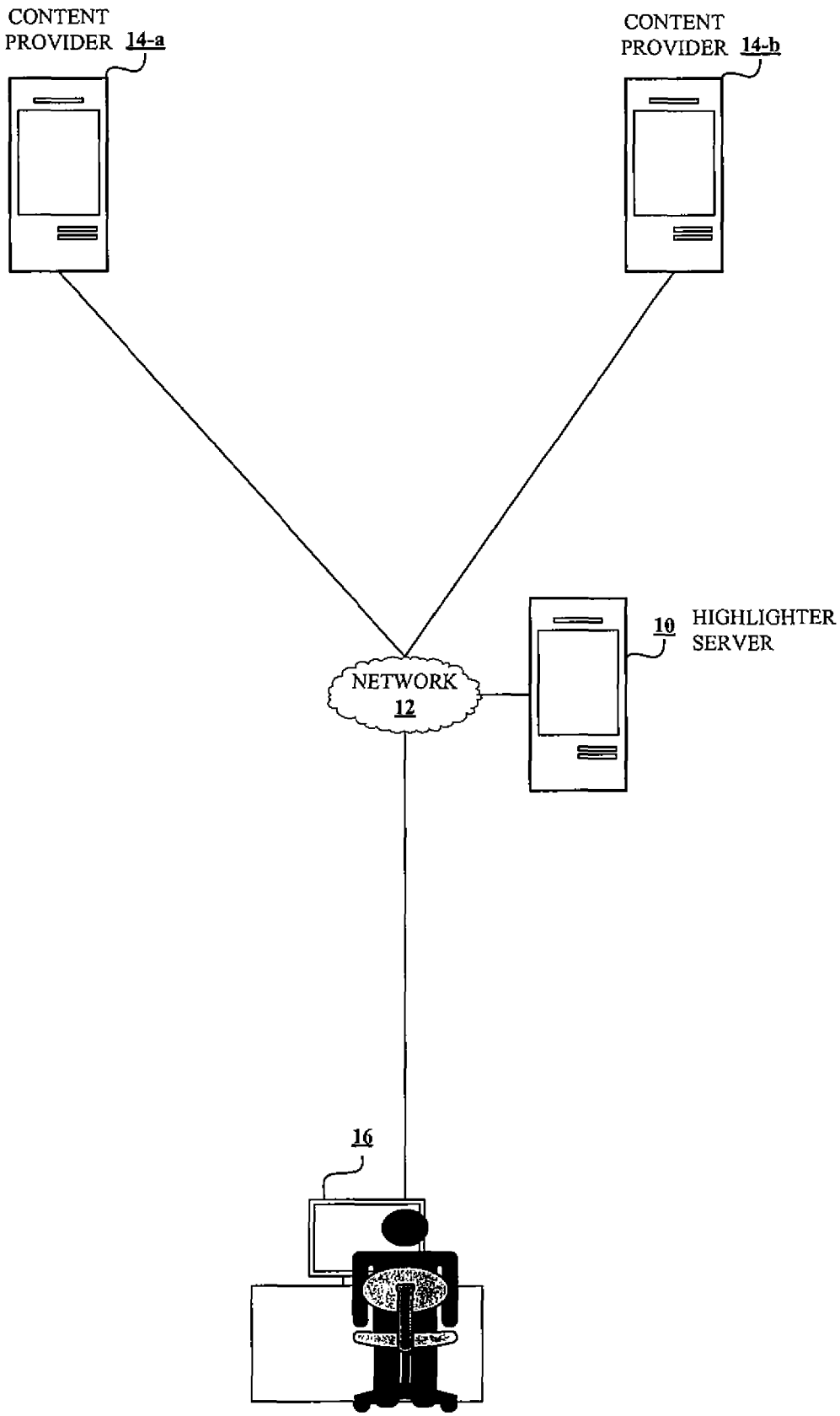
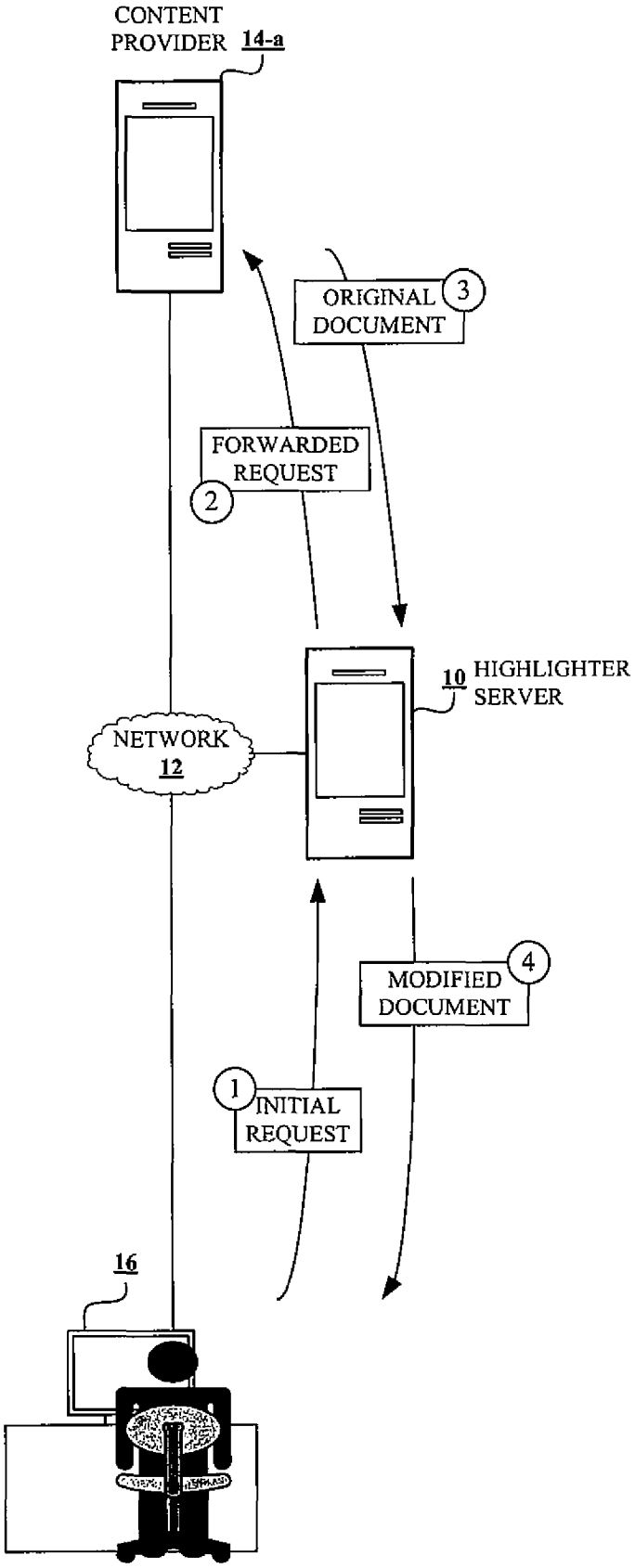

CONTENT PROVIDER 14-a
CONTENT PROVIDER 14-b
NETWORK 12
10 HIGHLIGHTER SERVER
16

FIG. 1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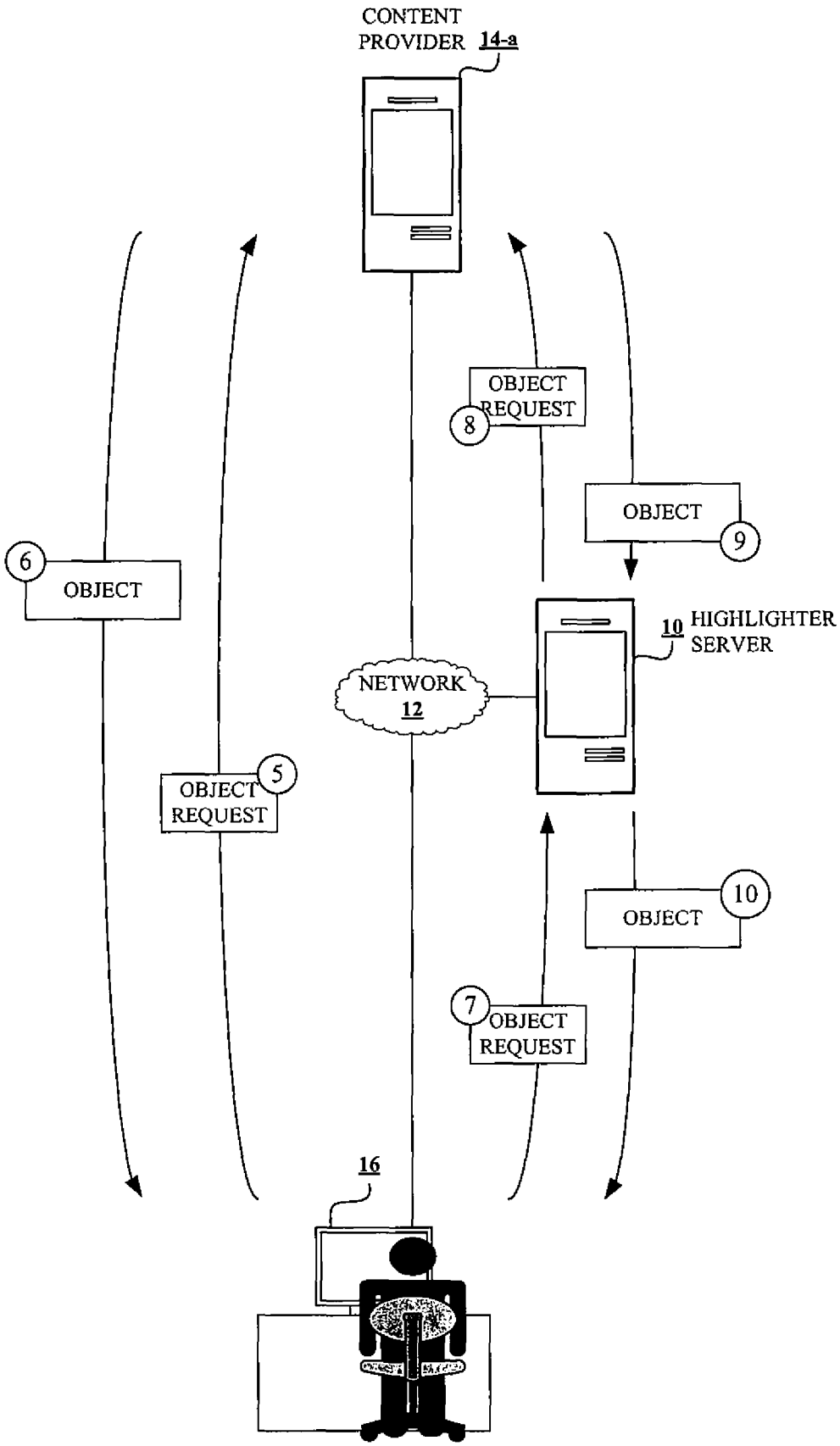
FORWARDED REQUEST 2
10 HIGHLIGHTER SERVER
NETWORK 12
MODIFIED DOCUMENT 4
1 INITIAL REQUEST
16

FIG. 2


CONTENT PROVIDER 14-a
OBJECT REQUEST
8
OBJECT
9
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OBJECT
10 HIGHLIGHTER SERVER
NETWORK 12
OBJECT REQUEST
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OBJECT
10
7
OBJECT REQUEST
16

FIG. 3

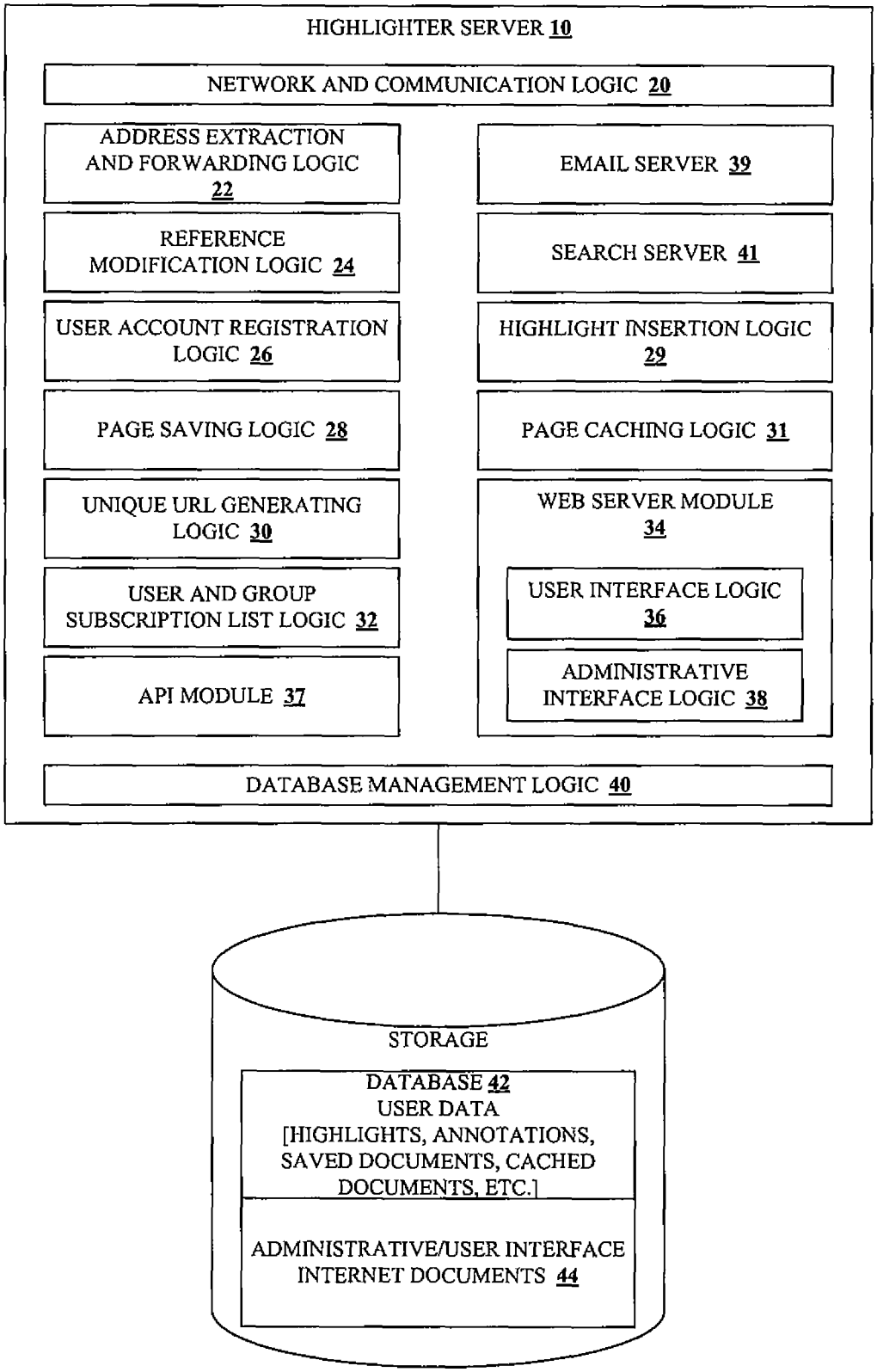
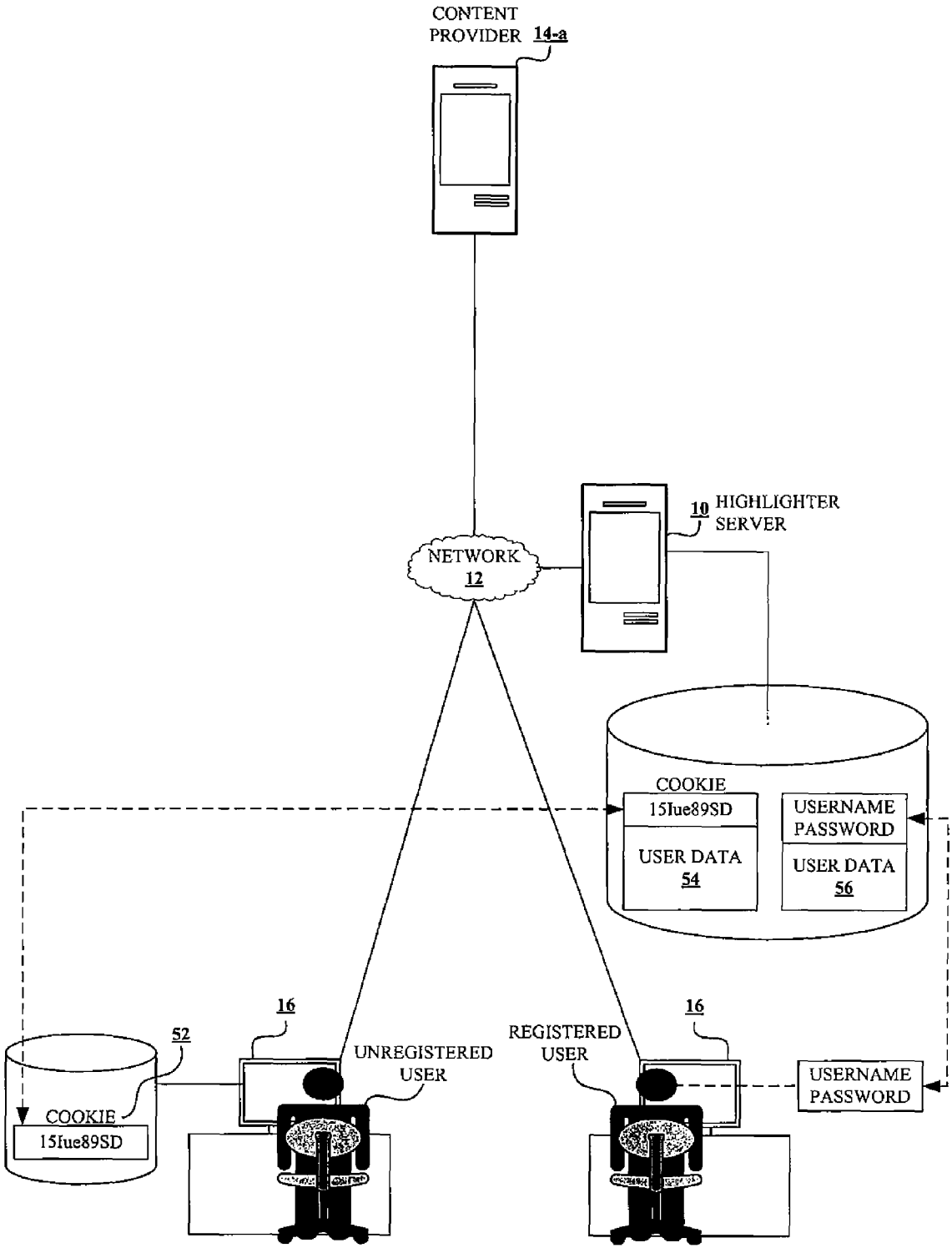

HIGHLIGHTER SERVER 10
NETWORK AND COMMUNICATION LOGIC 20
ADDRESS EXTRACTION AND FORWARDING LOGIC 22
REFERENCE MODIFICATION LOGIC 24
USER ACCOUNT REGISTRATION LOGIC 26
PAGE SAVING LOGIC 28
UNIQUE URL GENERATING LOGIC 30
USER AND GROUP SUBSCRIPTION LIST LOGIC 32
API MODULE 37
EMAIL SERVER 39
SEARCH SERVER 41
HIGHLIGHT INSERTION LOGIC 29
PAGE CACHING LOGIC 31
WEB SERVER MODULE 34
USER INTERFACE LOGIC 36
ADMINISTRATIVE INTERFACE LOGIC 38
DATABASE MANAGEMENT LOGIC 40
STORAGE
DATABASE 42
USER DATA
[HIGHLIGHTS, ANNOTATIONS, SAVED DOCUMENTS, CACHED DOCUMENTS, ETC.]
ADMINISTRATIVE/USER INTERFACE
INTERNET DOCUMENTS 44

FIG. 4


CONTENT PROVIDER 14-a
10 HIGHLIGHTER SERVER
NETWORK 12
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USER DATA 54
USERNAME PASSWORD
USER DATA 56
16
52
UNREGISTERED USER
REGISTERED USER
16
COOKIE
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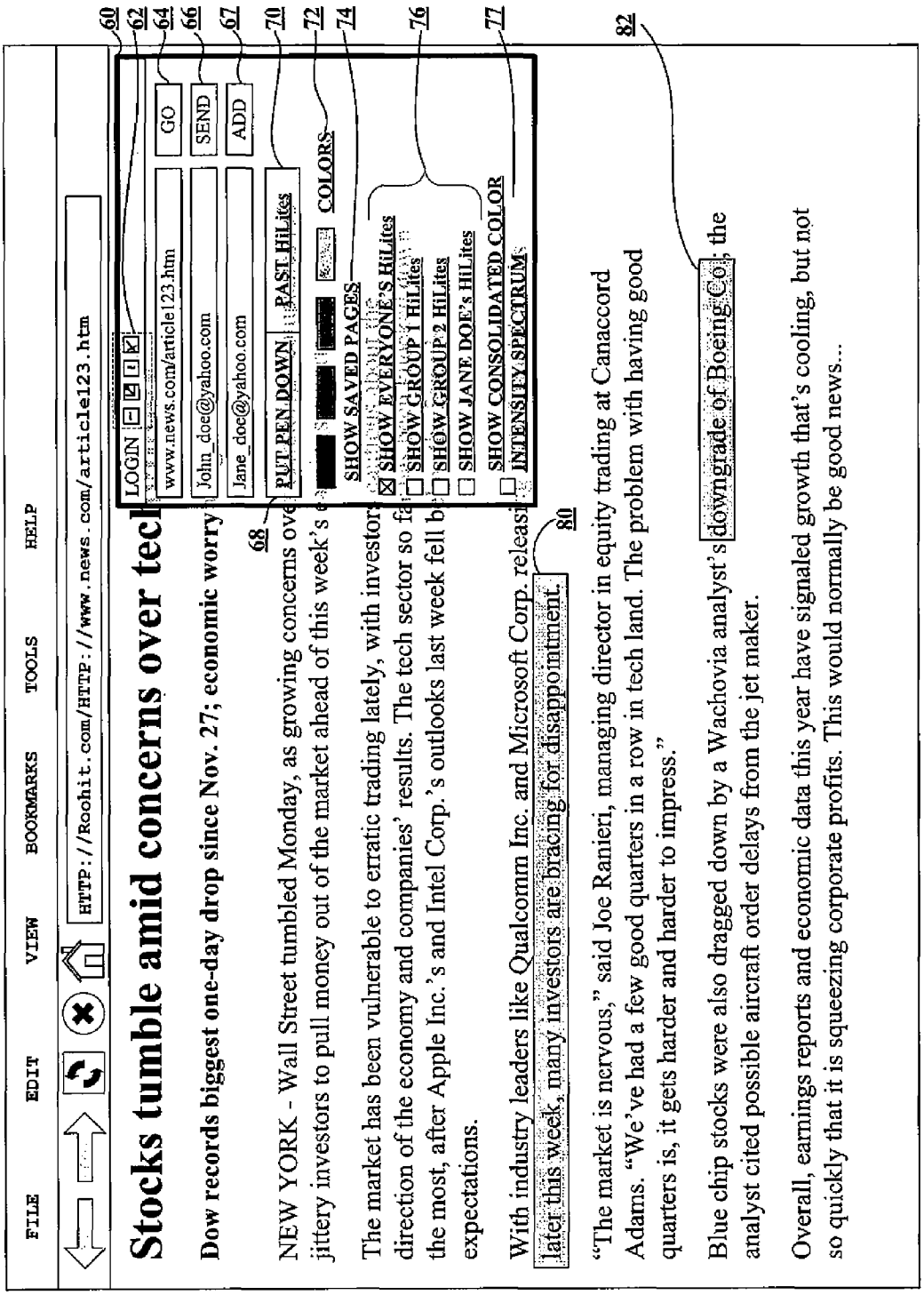
USERNAME PASSWORD

FIG. 5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Stocks tumble amid concerns over tech
Dow records biggest one-day drop since Nov. 27; economic worry
NEW YORK - Wall Street tumbled Monday, as growing concerns ove
jittery investors to pull money out of the market ahead of this week's
The market has been vulnerable to erratic trading lately, with investor
direction of the economy and companies' results. The tech sector so fa
the most, after Apple Inc.'s and Intel Corp.'s outlooks last week fell b
expectations.
With industry leaders like Qualcomm Inc. and Microsoft Corp. releasi
later this week, many investors are bracing for disappointment.
"The market is nervous," said Joe Ranieri, managing director in equity trading at Canaccord
Adams. "We've had a few good quarters in a row in tech land. The problem with having good
quarters is, it gets harder and harder to impress."
Blue chip stocks were also dragged down by a Wachovia analyst's downgrade of Boeing Co., the
analyst cited possible aircraft order delays from the jet maker.
Overall, earnings reports and economic data this year have signaled growth that's cooling, but not
so quickly that it is squeezing corporate profits. This would normally be good news...
LOGIN
www.news.com/article123.htm
GO
John_doe@yahoo.com
SEND
Jane_doe@yahoo.com
ADD
PUT PEN DOWN
PAST HiLites
COLORS
SHOW SAVED PAGES
SHOW EVERYONE'S HiLites
SHOW GROUP 1 HiLites
SHOW GROUP 2 HiLites
SHOW JANE DOE's HiLites
SHOW CONSOLIDATED COLOR
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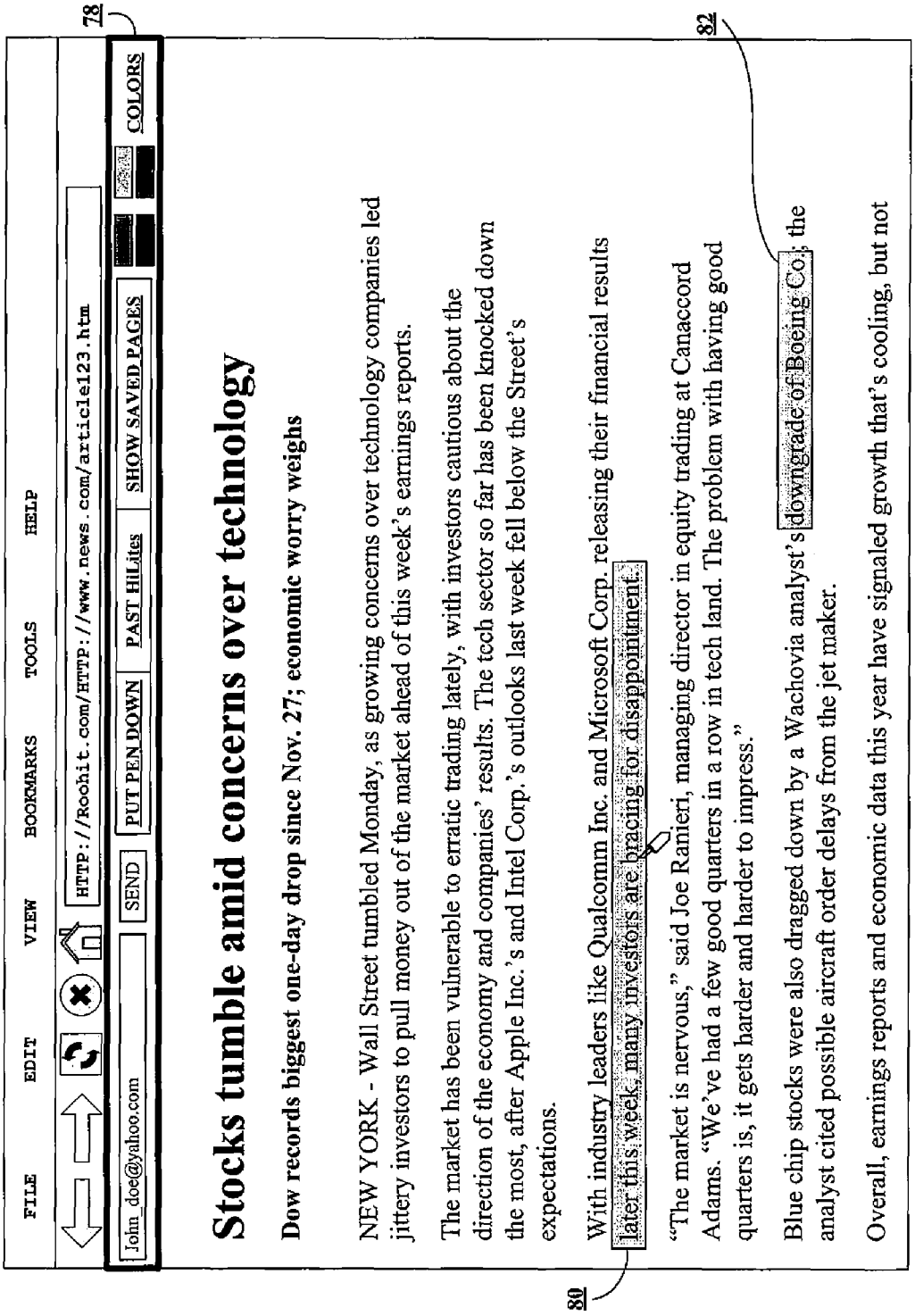
FIG. 6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Dow records biggest one-day drop since Nov. 27; economic worry weighs
NEW YORK - Wall Street tumbled Monday, as growing concerns over technology companies led jittery investors to pull money out of the market ahead of this week's earnings reports.
The market has been vulnerable to erratic trading lately, with investors cautious about the direction of the economy and companies' results. The tech sector so far has been knocked down the most, after Apple Inc.'s and Intel Corp.'s outlooks last week fell below the Street's expectations.
With industry leaders like Qualcomm Inc. and Microsoft Corp. releasing their financial results later this week, many investors are bracing for disappointment.
80
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82
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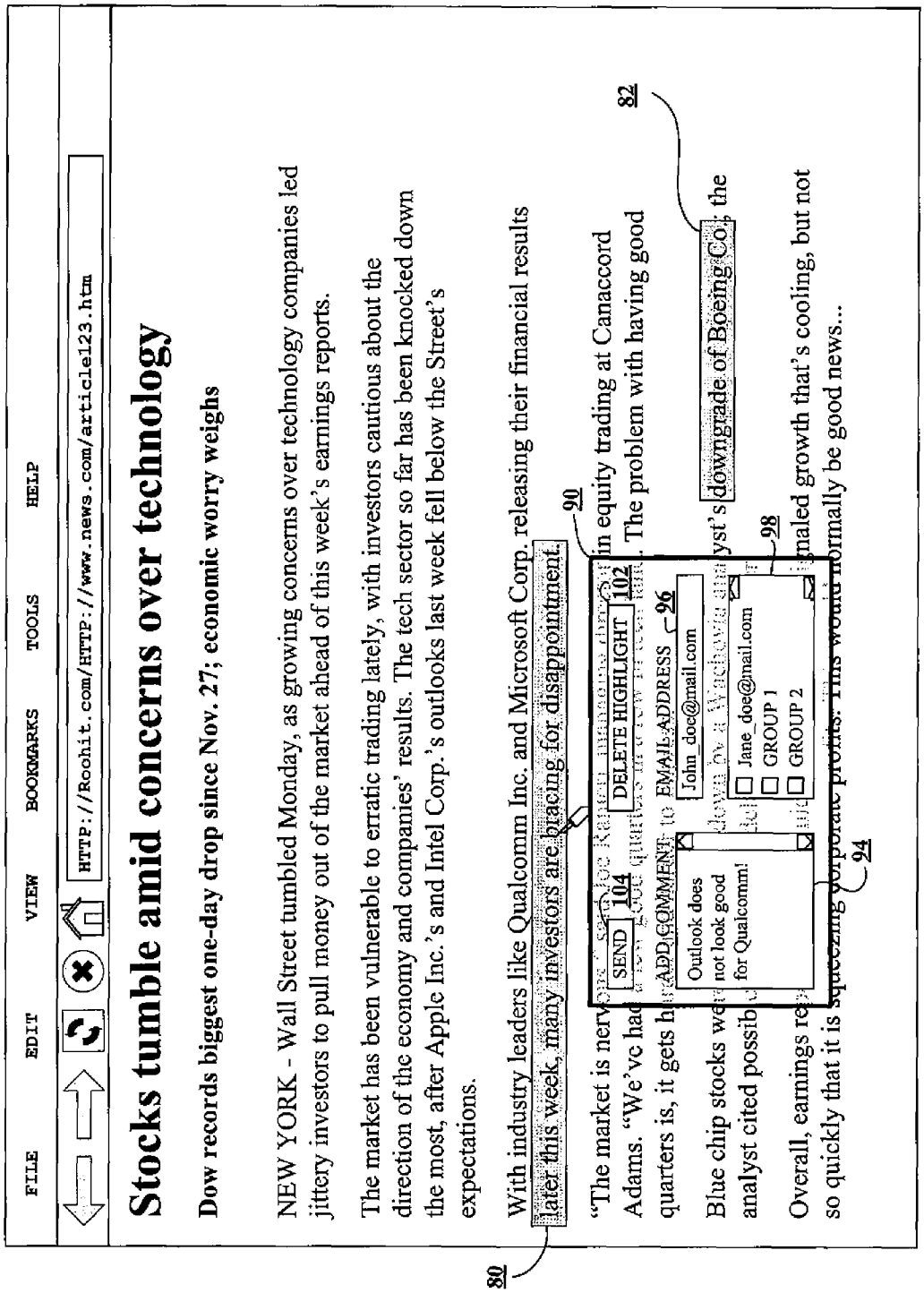
Overall, earnings reports and economic data this year have signaled growth that's cooling, but not

FIG. 7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With industry leaders like Qualcomm Inc. and Microsoft Corp. releasing their financial results later this week, many investors are bracing for disappointment.
"The market is ner
Adams. "We've had
quarters is, it gets h
Blue chip stocks we
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Overall, earnings re
so quickly that it is
SEND 104
DELETE HIGHLIGHT 102
ADD COMMENT to EMAIL ADDRESS 96
Outlook does not look good for Qualcomm!
John_doe@mail.com
Jane_doe@mail.com
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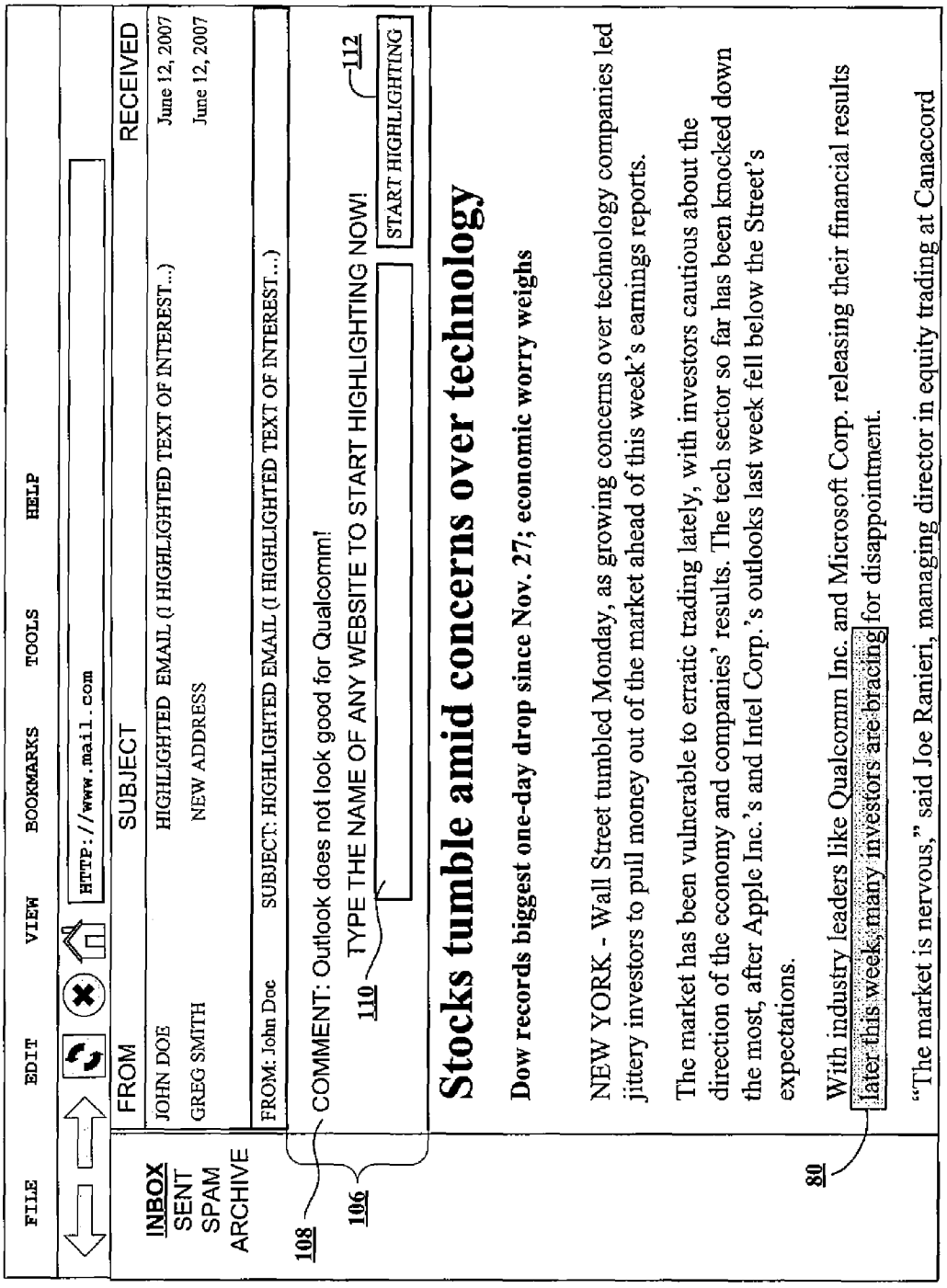
maled growth that's cooling, but not
squeezing corporate profits. This would normally be good news...

FIG. 8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JOHN DOE
HIGHLIGHTED EMAIL (I HIGHLIGHTED TEXT OF INTEREST...)
June 12, 2007
GREG SMITH
NEW ADDRESS
June 12, 2007
FROM: John Doe
SUBJECT: HIGHLIGHTED EMAIL (I HIGHLIGHTED TEXT OF INTEREST...)
108
COMMENT: Outlook does not look good for Qualcomm!
106
110
TYPE THE NAME OF ANY WEBSITE TO START HIGHLIGHTING NOW!
112
START HIGHLIGHTING
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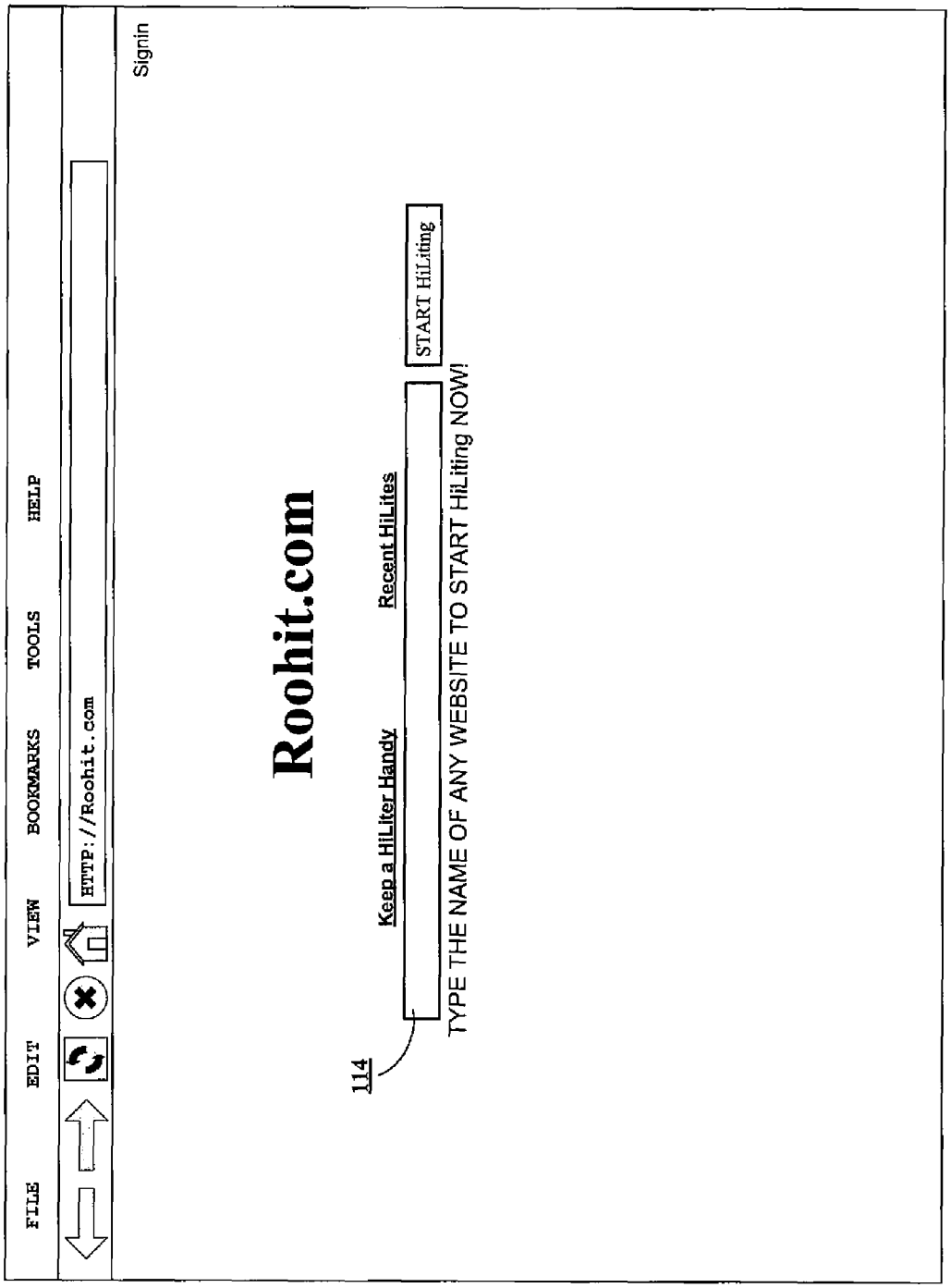
FIG. 9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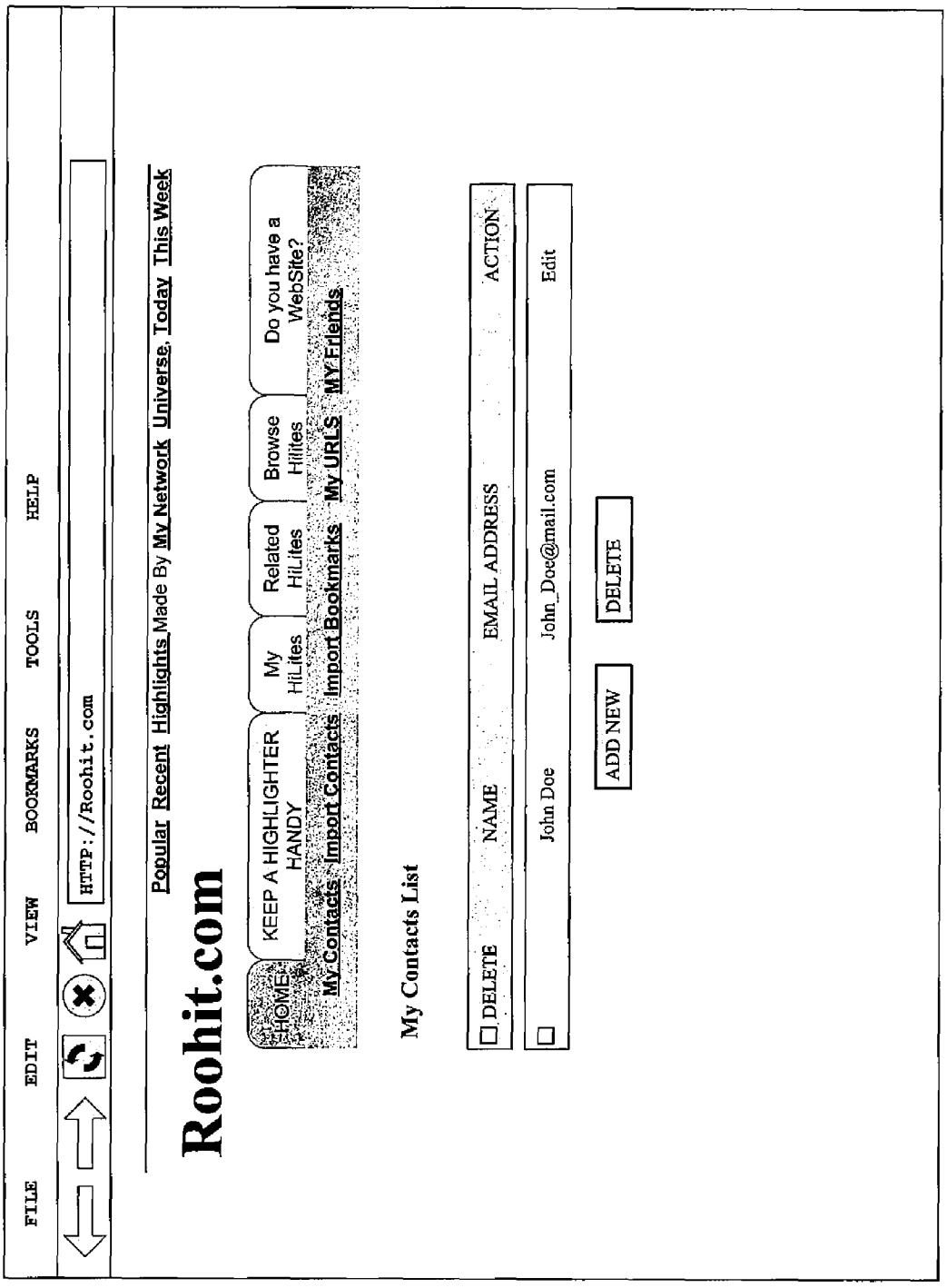
TYPE THE NAME OF ANY WEBSITE TO START HiLiting NOW!

FIG. 10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Browse HiLites
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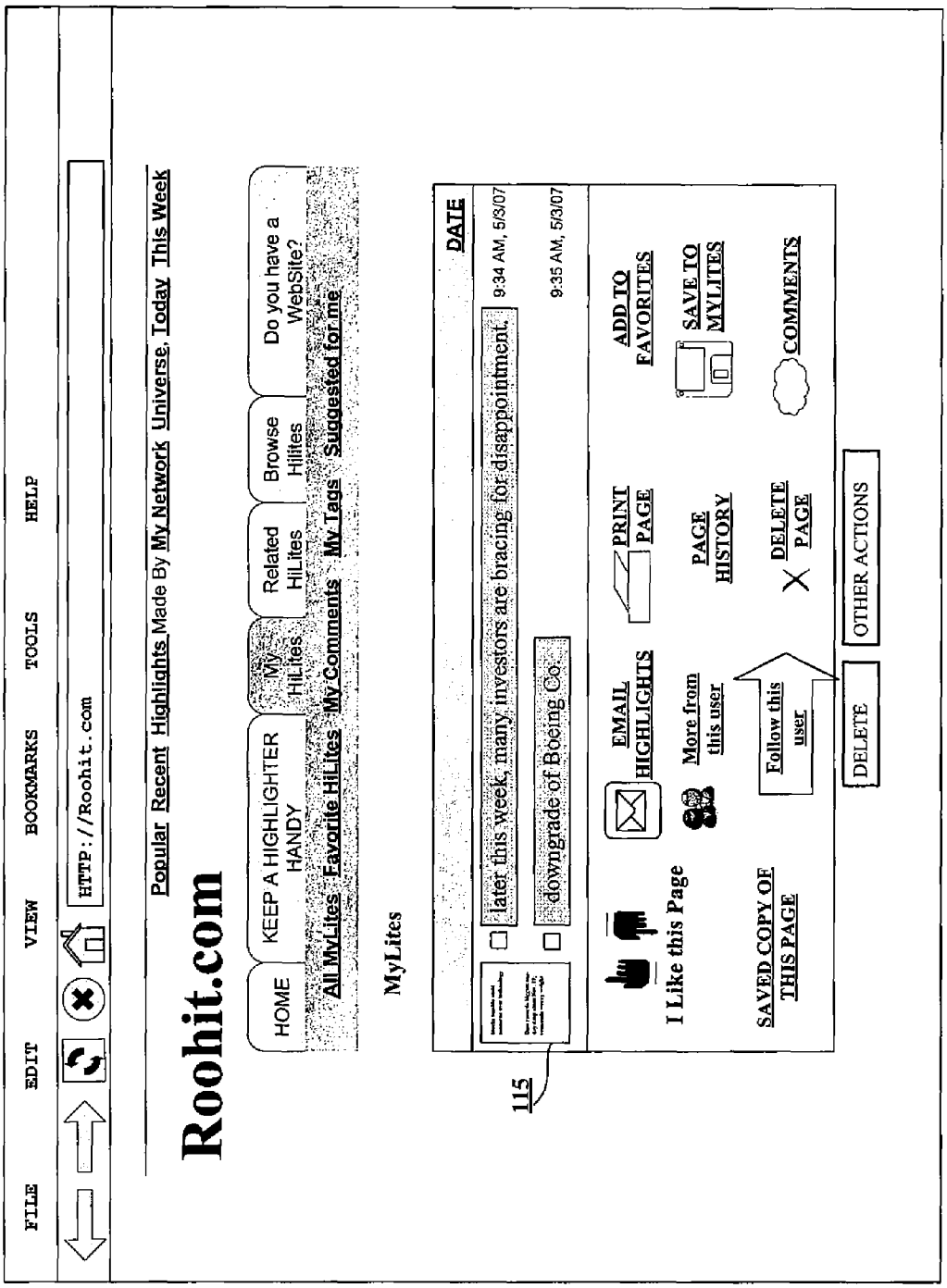
My Contacts Import Contacts Import Bookmarks My URLS MY Friends
My Contacts List
DELETE
NAME
EMAIL ADDRESS
ACTION
John Doe
John_Doe@mail.com
Edit
ADD NEW
DELETE

FIG. 11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All MyLites Favorite HiLites My Comments My Tags Suggested for me
MyLites
DATE
later this week, many investors are bracing for disappointment.
9:34 AM, 5/3/07
downgrade of Boeing Co.
9:35 AM, 5/3/07
115
I Like this Page
EMAIL HIGHLIGHTS
PRINT PAGE
ADD TO FAVORITES
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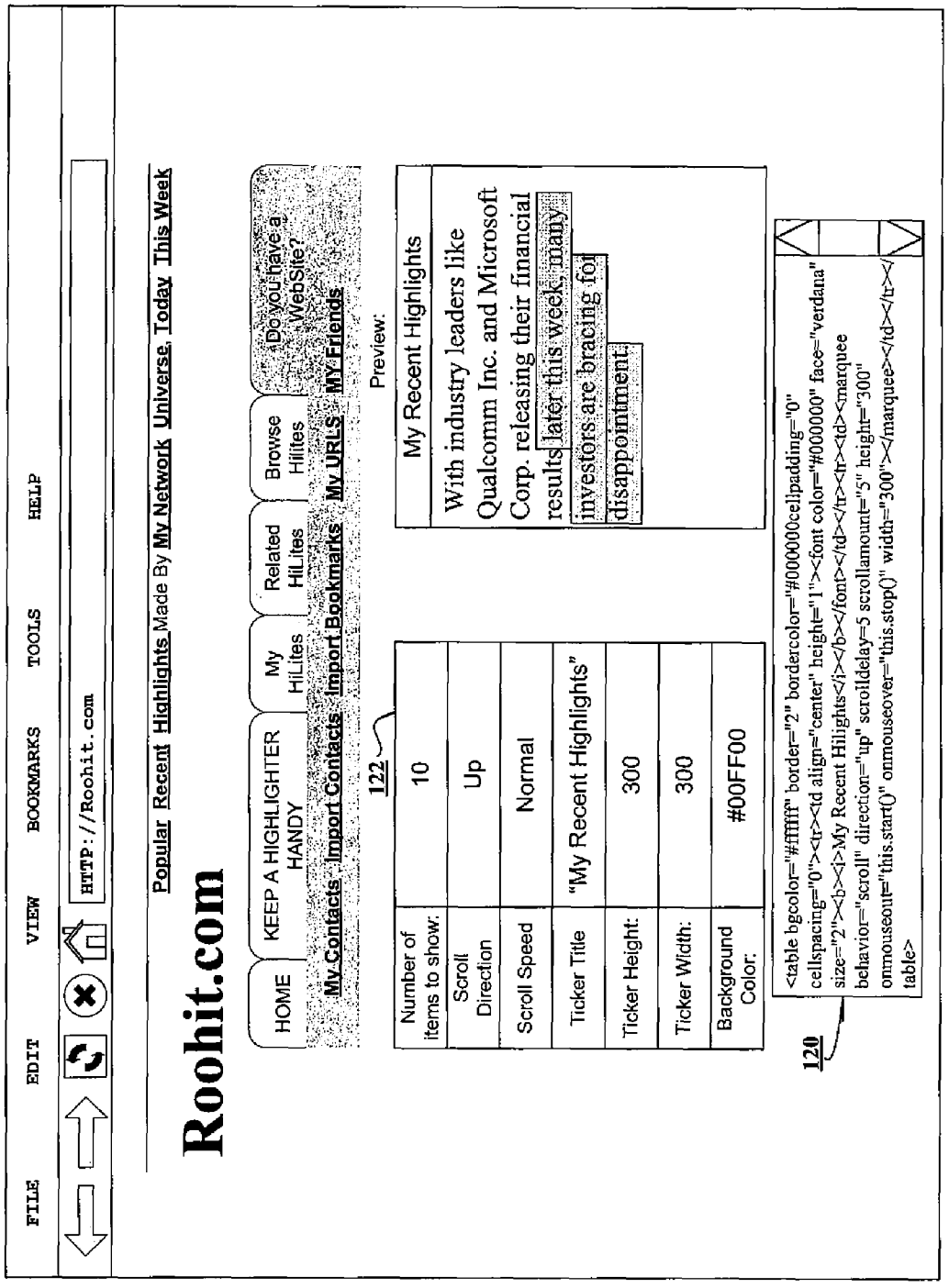
FIG. 12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Do you have a WebSite?
My Contacts Import Contacts Import Bookmarks My URLS MY Friends
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Preview:
Number of items to show: 10
Scroll Direction Up
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Ticker Title "My Recent Highlights"
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My Recent Highlights
With industry leaders like Qualcomm Inc. and Microsoft Corp. releasing their financial results later this week, many investors are bracing for disappointment.
120
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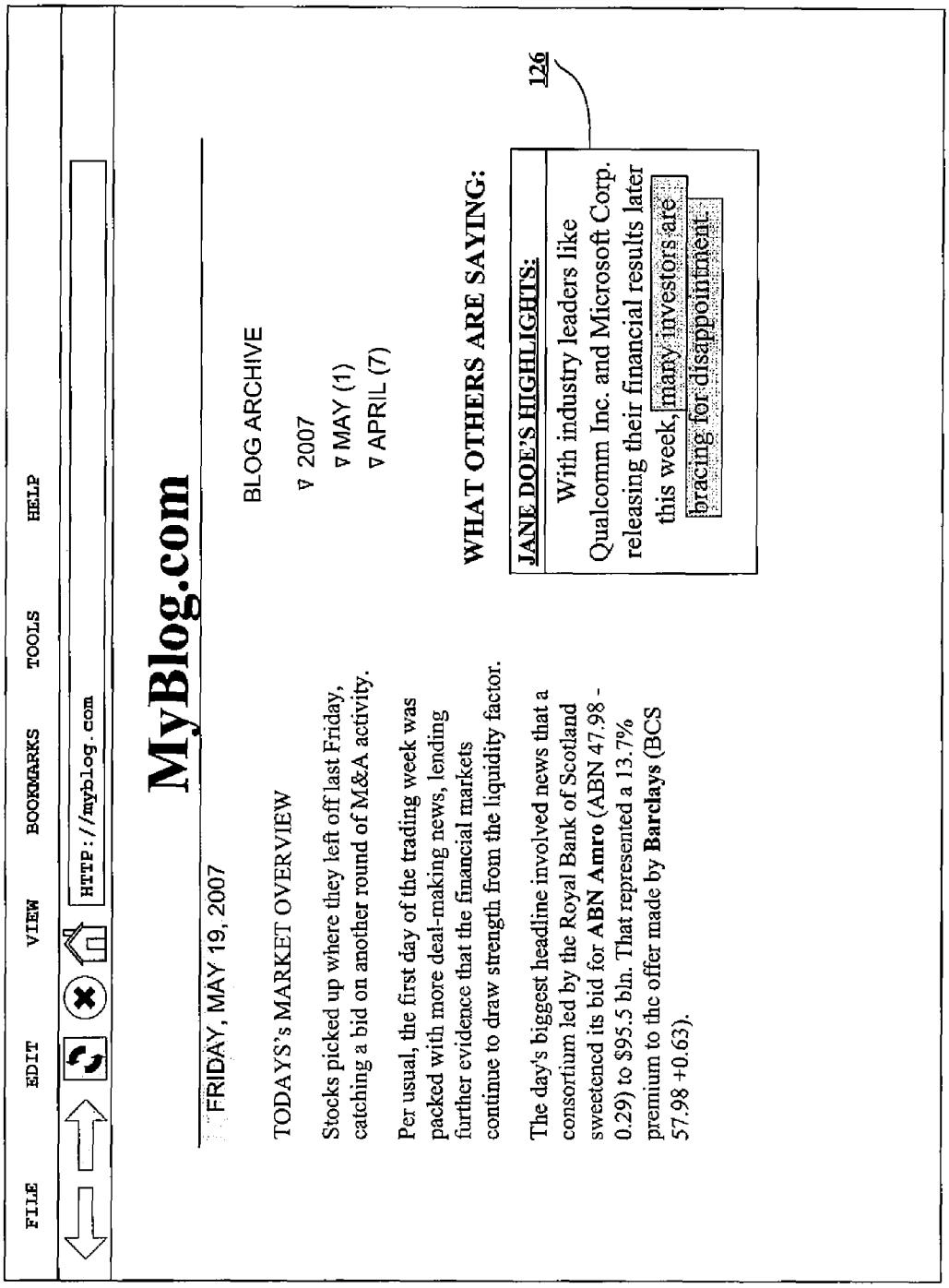
FIG. 13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FRIDAY, MAY 19, 2007
TODAYS's MARKET OVERVIEW
Stocks picked up where they left off last Friday, catching a bid on another round of M&A activity.
Per usual, the first day of the trading week was packed with more deal-making news, lending further evidence that the financial markets continue to draw strength from the liquidity factor.
The day's biggest headline involved news that a consortium led by the Royal Bank of Scotland sweetened its bid for ABN Amro (ABN 47.98 - 0.29) to $95.5 bln. That represented a 13.7% premium to the offer made by Barclays (BCS 57.98 +0.63).
BLOG ARCHIVE
2007
MAY (1)
APRIL (7)
WHAT OTHERS ARE SAYING:
JANE DOE'S HIGHLIGHTS:
With industry leaders like Qualcomm Inc. and Microsoft Corp. releasing their financial results later this week, many investors are bracing for disappointment.
126

FIG. 14

METHOD AND APPARATUS FOR HIGHLIGHTING A PORTION OF AN INTERNET DOCUMENT FOR COLLABORATION AND SUBSEQUENT RETRIEVAL

RELATED APPLICATIONS

The present application claims the benefit of the filing date of the U.S. Provisional Patent Application with Ser. No. 60/815,467, filed on Jun. 22, 2006, the contents of which is incorporated herewith.

FIELD

The present invention relates generally to computer network-based information retrieval techniques. More particularly, the present invention relates to methods and systems that enable a user to mark-up or highlight information (such as text or images) on an internet document for better visibility, later retrieval and/or sharing with one or more other users.

BACKGROUND

A wealth of information is available on the Internet, and particularly that segment of the Internet referred to generally as the World Wide Web. However, despite vast improvements in search engines, finding the particular information that one is interested in can still be a challenging and time-consuming task. Perhaps even more frustrating is the lack of tools available to enable a user to retrieve previously searched for and discovered information. In the realm of search and retrieval, search engines aid in the search but leave much to be desired when it comes to information retrieval.

One common mechanism used for information retrieval is referred to generally as a bookmark, A bookmark is a mechanism or function enabling a user to save a copy of a uniform resource locator (URL). For example, if a user finds an article of interest at a URL for an "interesting article", the user can save the URL as a bookmark so that at a later time the user can simply select (e.g., with a mouse or other pointing device) the bookmark to reload the document associated with the URL. The user might choose to categorize the bookmarks. Traditionally, bookmarks have been facilitated by a web browser application and stored at the computer on which the web browser application resides. However, more recently online bookmarking services have provided users with a way to store bookmarks online, making the bookmarks accessible from any network-connected computer.

As a means of information retrieval, bookmarks have several shortcomings. One problem with bookmarks is they provide little, if any, explanation or context as to what it is about the associated document that may be significant. For instance, a bookmark simply associates a URL with a document. A user may generate a bookmark for a particular web page because of a single passage in an article, or a particular blog entry on a web page with many blog entries. When the user retrieves the web page at a later time by means of selecting the bookmark, the user may not be able to remember what it is that is significant about the web page and why he or she saved the bookmark in the beginning.

Another problem with bookmarks is that they become stale, and in some cases expire, over time. For instance, an internet document may change between the time that a user generates a bookmark, and then revisits the associated web page at a later time. In some cases, a URL may expire altogether. For example, the document associated with the URL may be removed from the server such that the URL returns an error message indicating the document no longer exists.

Another problem with bookmarks is they are a less than ideal mechanism for sharing information. For example, to share information with a bookmark facilitated by a web browser application, a user must generally email the bookmark to another user. When the recipient receives the email including the bookmark, the user must select the link—if the bookmark is implemented as a user-selectable link—in order to initiate loading of the associated document in the user's web browser application. Often the bookmark is not a user-selectable link. In this case, the user must copy-and-paste, or type, the corresponding URL of the bookmark into the address bar of the web browser application. The copy-and-paste method sometimes does not work because of special characters, such as carriage return and line feed characters, in the URL. In any case, the additional steps required to access the relevant document are often viewed as burdensome. Often it is only a subset of individuals who end up going through the process necessary to load the relevant document. When the relevant document is finally loaded into and displayed by the recipient's web browser, the recipient of the bookmark may not appreciate the relevance of the associated document.

Realizing that many email recipients will not follow embedded links, some senders have devised a strategy wherein they copy-paste the relevant portions of an internet document into the body of an email. However, this simply shifts the copy-paste workload from the recipient to the sender. Furthermore, on the receiving end, the context is lost and credibility is in doubt as to the authenticity of the pasted material with respect to the original content. Thus, improved tools for information retrieval and collaboration are needed.

SUMMARY

A method and apparatus for enabling a user to selectively make one or more highlights in a currently displayed internet document in a web browser are disclosed. The user-generated highlights are persistent over user-initiated cursor control activities as well as persistent over web browsing sessions. Furthermore, the highlighting functionality can be invoked without downloading and installing any custom software components, and without explicitly generating a user account.

Other aspects of the invention are described below in connection with the description of the figures.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate an implementation of the invention and, together with the description, serve to explain the advantages and principles of the invention. In the drawings,

FIG. **1** illustrates an example of a computer network environment including a highlighting or highlighter server, according to an embodiment of the invention;

FIGS. **2** and **3** illustrate data flow diagrams showing an example of the data flow between an end-user's computing device, a highlighter server, and a content provider according to an embodiment of the invention;

FIG. **4** illustrates a logical block diagram showing an example of the logical components of a highlighter server according to an embodiment of the invention;

FIG. **5** illustrates an example of a registration procedure by which an unregistered user converts to a registered user, according to an embodiment of the invention;

FIG. **6** illustrates an example of a user interface object, referred to herein as a highlighter panel, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention;

FIG. **7** illustrates an example of a user interface object, referred to herein as a highlighter toolbar, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention;

FIG. **8** illustrates an example of a user interface object, referred to herein as a collaboration panel, which enables a user to share an internet document containing user-generated highlights with another user, according to an embodiment of the invention;

FIG. **9** illustrates an example of an email with user-generated highlights, according to an embodiment of the invention;

FIGS. **10** through **12** illustrate various user interface features of a highlighter web portal, according to an embodiment of the invention;

FIG. **13** illustrates an example of a web page providing a snippet of code for adding a highlighter roll to a web page, according to an embodiment of the invention; and

FIG. **14** illustrates an example of a web page with a user interface object referred to herein as a highlight roll, according to an embodiment of the invention.

DETAILED DESCRIPTION

Reference will now be made in detail to an implementation consistent with the present invention as illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings and the following description to refer to the same or like parts. Although discussed with reference to these illustrations, the present invention is not limited to the implementations illustrated therein. Hence, the reader should regard these illustrations merely as examples of embodiments of the present invention, the full scope of which is measured only in terms of the claims following this description. In particular, many of the various aspects and features of the invention are most easily understood by those skilled in the art when conveyed as user interface features. However, those skilled in the art will appreciate that the user interface elements illustrated and described are examples, and the invention is not to be limited by those user interface features specifically illustrated in the drawings.

Consistent with one embodiment of the invention, a highlighting service is provided by a highlighting server, which enables a user to manipulate the user interface of a web browser application executing at the user's client device to selectively highlight the text of an internet document received from a content provider's server. In so doing, any portions of text highlighted by the user are captured by the highlighter server. For example, the portion of text highlighted by the user is communicated to the highlighter server, where it is stored. Accordingly, the highlighter server enables a user to easily retrieve the highlighted text at a later time. In addition, the highlighter server enables a user to annotate and share the highlighted text, along with the internet document, with other users.

The highlighter server enables a user to selectively highlight text via a conventional web browser interface, for example, by controlling a customizable cursor with a pointing device (e.g., a mouse, trackball, joystick). The manner in which the user manipulates the user interface to selectively highlight text is similar to the way in which a user would highlight text in any number of conventional text editing applications. For example, the user may simply press and hold a button of a pointing device while manipulating a cursor with the pointing device to select a particular portion of text. However, in accordance with an embodiment of the invention and in contrast to conventional text editing applications, the highlighter server enables a user to highlight the text and graphics of internet documents served from a content provider server with the conventional controls and features of a web browsing application, without installing any special software. Moreover, any highlights made by the user are communicated in near-real-time to the highlighter server without any need for any additional user interaction. Consequently, any highlights the user makes are automatically saved at the highlighter server and can easily be viewed during a subsequent web browsing session. In an alternative embodiment of the invention, the highlights could be saved on a local device.

In addition to enabling a user to easily retrieve highlighted portions of internet documents, the highlighter server facilitates various methods of sharing highlighted portions of text with other users. For instance, in one embodiment, after a first user has made a highlight to a particular internet document, a subsequent user viewing the same document with the highlighting service invoked will optionally be able to see the first user's highlight(s). Similarly, if multiple users previously made highlights to a particular document a subsequent user will be able to see all user's highlights. To avoid becoming overwhelmed with highlights, a user, and/or the system, can configure the settings of the highlighting service such that only highlights made by user-selected persons (including oneself), or those persons who are a member of a user-selected and/or system-selected group, are displayed. In yet another aspect, a user may generate and send an email to another user such that the email includes the highlighted portions of text and/or the entire document as highlighted.

It will be appreciated by those skilled in the art that various architectures may be used to implement a highlighting service consistent with the invention described herein. Furthermore, although many functions described herein are attributed to either a client or a server, those skilled in the art will appreciate that in alternative embodiments of the invention, a function attributed herein to a server, may in fact be implemented on, or provided by a client device. Similarly, a function described herein as being provided by a client, may be provided by a server in an alternative embodiment of the invention. Other aspects of the invention will become apparent from the descriptions of the drawings that follow.

Although the present invention is described herein primarily in the context of a highlighting service, those skilled in the art will recognize a wide variety of other applications that are consistent with the general spirit of the invention. For instance, consistent with another embodiment of the invention, a client web browser directs a request for a document (either directly, or indirectly) to a content provider hosting the document. The request may be directed to an intermediate server or intercepted by an intermediate server, which in turn, forwards the document request on to the content provider server. The content provider server sends the requested internet document to the intermediate server where it is modified in some manner "on the fly". That is, the requested internet document is modified by the intermediate server in near real time, before it is forwarded on to the requesting client web browser. Accordingly, the requesting client web browser receives a modified copy of the requested document, without making any actual modification to the document stored on the content provider server. In an alternative embodiment of the invention, the requested document is communicated from the intermediate server to the client web browser in its original

unmodified form, along with a code module. At the client web browser, the code module is executed or interpreted, causing the client to modify the original document in some manner.

The modification to the document made by the intermediate server in near real time (or the client) may include overlaying an object on the document, changing a portion of the document, altering the references in a document, adding an additional element or component to the internet document, or alternatively, removing or deleting a portion or element of the originally requested document. For example, in one embodiment of the invention, a portion of the document may be highlighted. In another embodiment of the invention, an advertisement may be added or deleted from the originally requested document. In yet another embodiment of the invention, a textual portion of the document may be italicized, underlined, made bold, or have its color changed. In any case, the document is being modified by the intermediate server.

System Architecture

FIG. **1** illustrates an example of a computer network environment including a highlighter server **10**, according to an embodiment of the invention. As illustrated in FIG. **1**, the highlighter server **10** is communicatively coupled by means of a network **12** to several content provider servers (e.g., **14**-*a* and **14**-*b*). In addition, the highlighter server **10** is communicatively coupled by means of a network **12** to a user's client computer **16**. It will be appreciated by those skilled in the art that the computing environment illustrated in FIG. **1** is but one example, and a wide variety of computer and network configurations might be used without departing from the spirit of the invention. For instance, the user computer, although depicted in FIG. **1** as a desktop computer, may be any of a wide variety of computing devices, including but not limited to: desktop computer, laptop computer, personal digital assistant, or mobile handset. Furthermore, although in the examples provided herein the highlighter server **10** is shown as a separate component, in one embodiment of the invention the highlighting service executing on the highlighter server **10** may reside and execute on a content provider server (e.g., **14**-*a*, or **14**-*b*), or a server under the control of a content provider.

In general, the user utilizes a web browser application on client computer **16** to access and display content in the form of internet documents or web pages, which are stored in whole or in part on various content providers (e.g., **14**-*a* and **14**-*b*). In one embodiment of the invention, a user invokes the highlighter service by prepending the address or uniform resource locator (URL) of the highlighter server **10** prior to the URL of an internet document that the user is requesting. In one embodiment of the invention, a bookmarklet, which is a button with associated code that typically resides on a web browser toolbar, automatically prepends the address of the highlighting server to the address of a document, thereby invoking the highlighting service.

Consistent with an embodiment of the invention, once a highlighter session has been invoked, a user has at his or her disposal a variety of tools for highlighting text and objects of an internet document. For instance, in one embodiment of the invention, a highlighter tool panel will appear in the web browser window and provide the user with a selection of controls enabling various features and functions of the highlighting service. In another embodiment of the invention, various controls may be provided by a highlighter toolbar. In any case, the basic function of the highlighting service is to enable a user to highlight an object (e.g., text, graphical images, etc.) of an internet document, such that the highlighted portion(s) can easily be recalled at a later time and/or shared with other users. Accordingly, as the user highlights an object, the highlighted object is communicated to the highlighter server **10** where it is stored. In one embodiment of the invention, the highlighted object (e.g., a selection of text) is stored along with any annotations or comments the user may have added, as well as a date and time indicating when the highlight was generated. The highlighted object and its associated data are stored in such a manner as to be associated with the user who generated the highlight. This allows the user to recall and view highlights from previous highlighting sessions. Furthermore, as each highlight is associated with a source (e.g., a person responsible for generating the highlight), users can configure the highlighting service to display highlights on a per user basis. That is, a user may configure the settings of the highlighting service to display only the highlights of a particular user, or group of users. For instance, as described in greater detail below, users may create and subscribe to groups. Accordingly, a user may configure the highlighting service to display highlights on a per group basis, such that only highlights from those members of a particular group are displayed. Similarly, an embodiment of the invention may enable a user to build out a social network, for example, by specifying who the user considers to be direct contacts. Accordingly, the user may configure the highlighting service to display highlights of all users within the user's social network, up to a certain degree of separation (e.g., a friend of a friend).

The highlighting service enables the user to generate highlights with conventional web browser controls. For example, in one embodiment of the invention, the user generates a highlight by simply pressing a button of a cursor control device (e.g., mouse) and dragging the cursor across an object before letting up on the button. The highlights generated by a user, according to an embodiment of the invention, are persistent over user-initiated cursor activity as well as web browsing sessions. That is, after making a highlight, each user-generated highlight remains even after the user clicks on a different portion of the internet document. Similarly, a user can navigate away from an internet document or web page on which the user has made a highlight, and the next time the user revisits the web page, the highlight will be visible so long as the user has invoked a highlighting session via the highlighting service.

In one embodiment of the invention, the highlighting service is enabled without requiring the user to download and install a client-side software application. That is, the highlighting service is enabled via the standard functions of the web browser application on the client side. For instance, in one embodiment of the invention, asynchronous JavaScript and extensible markup language (XML), referred to as Ajax, are used to provide an interactive user experience via a conventional web browser application, without the need for downloading and installing any customized software. Alternatively, the highlighting service may be enabled by a browser plug-in or browser extension. For instance, a user may download and install a software application that when executed, works in conjunction with a web browser application to enhance the functionality of the web browser application—in this case, enabling the highlighting service. In yet another embodiment, the highlighting service may be enabled by a stand alone software application. That is, the client side functionality of the highlighting service may be attributed to a daemon, or some other stand alone software application.

FIGS. **2** and **3** illustrate a data flow diagram showing an example of the data flow between an end-user's computing device, a highlighter server, and a content provider according to an embodiment of the invention. As illustrated in FIG. **2**. a

highlighting session is invoked when, at step 1, a user directs an initial request via the user's web browser application to the highlighting service hosted by the highlighter server **10**. The initial request, although directed to the highlighter server **10**, includes the address of a desired interact document. For instance, the address of the highlighter server **10** may be prepended to the beginning of the address of the requested document such that the request is sent to the highlighter server **10**, but includes the address of the desired document hosted at the content provider **14**-*a*. For instance, such a request may be of the form: "[highlighter server web address]/[document server address]/[document file location]".

Once the highlighter server **10** receives the initial request, the highlighter server **10** analyzes the initial request and extracts the address of the requested document. For example, the address extraction logic **22** (shown in FIG. **4**) extracts the address of the requested Internet document (e. g., "[document server address]/[document file location]" from the request received by the highlighter server **10** (e.g., "[highlighter server web address]/[document server address[/]document file location]". Accordingly, at step 2. the forwarding logic **22** (shown in FIG. **4**) of the highlighter server **10** forwards the document request to the content provider that is hosting the requested document. At step 3, the content provider responds by communicating the original requested document to the highlighter server **10**.

Once the highlighter server **10** receives the original document from the content provider, the highlighter server **10** analyzes the original document and modifies various object references within the original document. For instance, in one embodiment of the invention, the highlighter server **10** includes reference modification logic **24** for modifying various references by prepending the highlighter server address to the existing addresses in the reference. Consequently, when an object is requested, the web browser application will direct a request to the highlighter server **10** for those objects with modified references. Finally, at step 4, the modified document is communicated from the highlighter server **10** to the client computer **16**.

As illustrated in FIG. **3**, when the client computer **16** receives the modified document, it attempts to request the various objects that are referenced in the document. Accordingly, at step 5, for those objects stored directly at the content provider, the client computer **16** sends object requests to the content provider **14**-*a*. Requests sent directly to the content provider **14**-*a* are serviced by the content provider **14**-*a*, and at step 6 one or more objects are returned to the client computer **16**. For those objects which have had their reference previously modified (e.g., by prepending the address of the highlighter server), the client computer directs one or more object requests to the highlighting service (e.g., at step 7). In turn, at step 8, the highlighting server **10** communicates a request for the object to the content provider **14**-*a*. The content provider communicates the object to the highlighting server at step 9, and finally, at step 10 the object is communicated to the client computer **16** which displays the internet document in a web browser window.

Referring again to FIG. **2**, if a user requests a document that has previously been highlighted (e.g., by the requesting user, or another user), the highlighter server **10** will modify the original document by inserting the necessary object reference to ensure that the highlight(s) are displayed when the document is rendered by the user's web browser application. For instance, the reference modification logic **24** of the highlighter server **10** will modify the object reference in the original document, such that the modified object reference will cause the particular object (e.g., selection of text) to be highlighted when displayed by the web browser application. In another embodiment of the invention, a portion of executable or interpretable code sent from the highlighter server **10** to the client enables the client to query the highlighter server **10**. Accordingly, the query is processed by the highlighting service, and if a particular document has been previously highlighted, the necessary data is sent to the client's web browser application to show the highlights. In one embodiment of the invention, the query indicates the URL of the currently displayed document. The highlighting service determines whether the URL is associated with any previously generated user highlights. If so, the highlighting service determines if the current user (e.g., the user viewing the document) has configured the highlight filtering mechanisms to display any of the previously generated user highlights. If the user has optionally selected to view highlights from one or more users who have previously generated a highlight on the currently displayed page, then the highlighting service will communicate the appropriate information to the client so that the highlight will be displayed.

FIG. **4** illustrates a logical block diagram showing an example of the logical components of a highlighter server **10** according to an embodiment of the invention. As illustrated in FIG. **4**, the highlighter server **10** includes network and communications logic **20** for communicating data with various other computing devices, including client computers and content provider servers. In one embodiment of the invention, the network and communication logic **20** implements the necessary network and communication protocols, such as transfer control protocol and the internet protocol (TCP/IP) for sending and receiving data over a network, such as the public Internet. A variety of other well known communication and networking protocols may be used in accordance with an embodiment of the invention.

In one embodiment of the invention, the highlighter server **10** includes address extraction and forwarding logic **22** as well as reference modification logic **24**. As described above, when the highlighter server **10** receives a request for a document hosted by another content provider, the address extraction and forwarding logic **22** extracts the document address of the requested document from the initial request received at the highlighter server **10**, and then forwards the extracted document address to the proper content provider **14**. Similarly, the reference modification logic **24** modifies object references in original documents received from content provider servers prior to sending the object references in the modified document to the client computer. Object references are modified, for example, to ensure that certain object requests are directed to the highlighter server, and other requests are directed directly to the content provider.

In one embodiment of the invention, the highlighter server **10** includes page caching logic **31**. Accordingly, when a client requests a document hosted at a content provider, the highlighter server **10** may check its cache to determine if the highlighter server **10** has a current copy of the document stored locally. If so, the highlighter server **10** does not need to forward the request to the content provider, but instead, the highlighter server **10** can retrieve and serve the document from its cache.

In one embodiment of the invention, the highlighter server **10** includes user account registration logic **26**. As described in greater detail below, in one embodiment of the invention, a user can access and use the highlighting service in one of two modes—as a registered user, or as an unregistered user. As an unregistered user, the user is not prompted to enter or provide any personal information or set-up a username and/or password. The highlighting service allows unregistered users to

save and share highlights. However, if an unregistered user would like to become a registered user, the user account registration logic **26** facilitates the generation of a user account while preserving all previously generated highlights. That is, the highlight service will merge an unregistered user's data into a registered account, thereby preserving any configuration settings and highlights the user made as an unregistered user.

In one embodiment of the invention, the highlighter server **10** includes page saving logic **28** and unique URL generating logic **30**. In certain situations, a user may desire to save a copy of an internet document. For instance, many internet documents—such as web pages on news sites, and blogs—are dynamic and constantly changing. Accordingly, a user may want to highlight a portion of an internet document and then save a copy of the entire page, for example, to share with another user or group of users. The page saving logic **28** enables a user to save a copy of an entire page. The unique URL generating logic **30** generates a unique URL to associate with the saved page. Therefore, to share an internet document that has been saved by the highlighting service, a user can share the unique URL generated by the unique URL generating logic **30** and associated with the saved page.

When a highlight is made on a page that tends to be dynamic (e.g., changes frequently)—for example, such as a blog site, or a news site—highlight insertion logic **29** analyzes the content of the page to determine if, and where, a previously made highlight is to be inserted. For example, as new blog entries are posted to a blog site, thereby forcing old entries to appear positioned lower on the web page, the highlight insertion logic **29** intelligently analyzes the web page to determine where to position a previously made highlight.

In one embodiment of the invention, users can display and view highlights on a per user and/or a per group basis. Accordingly, the highlighting server **10** includes user and group subscription logic **32** to manage the creation of, and subscription to, user- as well as system-defined groups. For instance, a web-based interface to the highlighting service may provide a user with an option to create a group, and invite others to join the group. Similarly, a user may search for and join previously created groups. The group subscription logic **32** facilitates and manages such tasks. Once a member has subscribed to a particular group, the member can configure the highlighting service to display highlights from all members of the group. In one embodiment, a user may subscribe to receive emails embedded with new highlights from users in a particular group. Accordingly, the user may subscribe to receive emails on a real-time basis showing all new highlights as they are made by users. Alternatively, a user may subscribe to receive a daily, weekly, or some other time period, email summary showing relevant highlights for that time period.

In one embodiment of the invention, the highlighting server **10** includes a web server module **34**. The web server module **34** not only serves documents that have been forwarded from other content providers, but the web server module **20** also provides an administrative interface to administrators of the highlighter server **10**, and a user interface to various features provided by the highlighter server **10**. For example, in one embodiment of the invention the web server component **34**, in conjunction with the administrative interface logic **38** facilitates web-based administration and configuration of the highlighter server **10**. Similarly, the web server component **34**, in conjunction with the user interface logic **36**, facilitates web-based configuration and setup of various features of the highlighting services provided by the highlighter server **10**. A storage device stores interact documents **44** associated with the user interface logic **36** and administrative interface logic **38** provided by the web server module **34**.

In one embodiment of the invention, the highlighter server **10** includes database management logic **40** for managing a data repository. Accordingly, as the highlighter server **10** receives portions of text and images from internet documents as such portions are highlighted by users, the database management logic **40** stores the highlights in a database **42**. Similarly, the database management logic **40** recalls the highlights from the database **42**, and provides the associated data to the web server module **34** so that the document can be manipulated (either at the server or at the client) in a manner that will display highlights when the document is rendered by a client's web browser.

In one embodiment of the invention, the highlighter server **10** includes an email server **39**. Accordingly, the email server **39** facilitates the generation and sending of emails by users. For example, via one or more user interface objects, a user may be prompted to enter or select an email address in order to send a copy of a currently displayed internet document—including any user-generated highlights—to another user. The email server not only facilitates the sending of the email, but also the generation of the email and the formatting of any highlighted objects. Accordingly, an email recipient will receive an email with an embedded internet document showing any user generated highlights made by the user. The recipient need not download any special software in order to view the sent internet document and associated highlights.

Another component of the highlighter server **10** is a search server **41**. In one embodiment of the invention, the highlighter server **10** provides a search interface where users can search for relevant internet documents and highlights. For example, a user may perform a keyword search, where the keyword is searched for in a portion of an internet document that has been previously highlighted by a user, or within an annotation or comments section associated with a particular highlight. The search server **41** may facilitate searches by user or by group, such that a user can enter the name or email address of a particular user as a search parameter. Furthermore, a user may search for content based on tags—a user-assigned, relevant keyword or term associated with or assigned to a piece of information, like a picture, article, or video clip, thus describing the item. Other aspects of the various search features are described in greater detail in related, co-pending U.S. patent application Ser. No. 11/766,669, entitled, "Method and System for Determining the Significance and Relevance of an Internet Document, or a Portion Thereof", filed on Jun. 21, 2007, which is hereby incorporated herein by reference.

One embodiment of the highlighter server **10** includes an application programming interface (API) module **37**. In various configurations of the highlighting server, the API module provides a common interface for communicating messages with third-party add-ons, as well as software agents. For example, in one embodiment of the invention, a third-party search engine may communicate API messages to the highlighter server, requesting information about various documents. Accordingly, the search engine may utilize an API to communicate those messages with the highlighter server **10**. Similarly, third-party tools and applications that utilize highlights, and the wide variety of information and data associated with highlights, may make requests of the highlighting server **10** via the API module **37**.

Those skilled in the art will appreciate that various alternative components and logic may be included in a particular implementation of the highlighter server **10**, without departing from the spirit of the invention.

User Registration

FIG. **5** illustrates an example of a registration procedure by which an unregistered user **50** converts to a registered user **52**, according to an embodiment of the invention. Advantageously, users need not download and install any customized software on a client computer in order to establish a highlighting session via the highlighter server **10**. For instance, in one embodiment of the invention, asynchronous JavaScript and extensible markup language (XML), referred to as Ajax, are used to provide an interactive user experience via a conventional web browser application, without the need for downloading and permanently installing any customized software. Moreover, in one embodiment of the invention, a user need not register with the service, or establish a user account, in order to use the highlighting service. When a user has not registered with the service, a unique identifier **52** is sent from the highlighter server **10** to the client **16** executing the web browser application. The unique identifier, for example, may be an HTTP cookie that uniquely identifies the user. Accordingly, when a user selects a portion of an internet document with a highlighter cursor during a highlighting session, that portion of the document highlighted by the user is communicated to the highlighter server, associated with the unique identifier, and then stored at the highlighter server **10** (e.g., as user data **54** in FIG. **5**). If, during a subsequent browsing session, a request is made for the same document, and the request includes the user's unique identifier, the highlighter server **10** will associate the highlighted portion of text with the unique identifier and manipulate the requested document to cause the highlight(s) to appear when the document is displayed in the user's web browser window. If a user decides to register with the highlighting service, the unique identifier (e.g. the HTTP cookie) is associated with a new human readable identifier, such as a user-selected username and password, and all previously generated highlights will be preserved and transferred to the user's registered account, as illustrated by user data **56** in FIG. **5**

User Interface (Highlighter Panel/Toolbar/Collaboration Panel)

FIG. **6** illustrates an example of a user interface object, referred to herein as a highlighter tool panel **60**, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention. According to one embodiment of the invention, the highlighter tool panel **60** appears as a separate window within the browser display window, and may have a variety of display modes. For instance, as illustrated in FIG. **6**, the highlighter tool panel **60** is in maximized display mode and all controls are visible. In addition to a maximized mode, the highlighter tool panel **60** may also have a minimized mode. In the minimized mode, a subset of the controls may be accessible. As with conventional graphical user interface windows, a set of buttons **62** at the top of the window provide a mechanism for switching between maximized and minimized modes, and closing the tool panel window. In one embodiment of the invention, the highlighter panel may even have an invisible mode.

In one embodiment of the invention, the tool panel **60** includes an address bar **64** which provides a separate mechanism for navigating the World Wide Web and displaying internet documents hosted by different content providers. For instance, by typing an address in the text entry box of the address bar **64** displayed in the highlighter tool panel **60** and selecting the "GO" button, a user can download and display an internet document associated with the address entered. Note that the address entered in the text entry box need not include a reference to the highlighting service. The entered address will automatically be manipulated to invoke the highlighting service. If, for instance, an additional address needs to be prepended to the address entered by the user in order to invoke the highlighting service with the requested internet document, the tool panel **60** will automatically manipulate the address accordingly.

In addition to an address bar **64**, in one embodiment of the invention the highlighter tool panel **60** includes an email address bar **66** where a user can enter an email address and share the currently displayed document, including any user-generated highlights in the document, with another user. For example, the email address bar **66** enables a user to enter one or more email addresses, and then select the "SEND" button to instantly send an email of the currently displayed internet document. If the currently displayed document includes user-generated highlights (e.g., highlighted text **80** and **82**) those highlights will be displayed with the document in the email. Advantageously, the internet document (including any highlights) is embedded within an email such that the user need not install any special software in order to view the document and any included highlights.

In one embodiment of the invention, the highlighter tool panel **60** includes a text entry box for adding a user to a list of users whose highlights can be selectively toggled on or off. For instance, by inputting an email address (e.g., [name]@[domain]) or username of another user in a text box, and pressing the add button **67**, the user can be added to a list of users and groups **76** whose highlights can be selectively shown or hidden. Adding a user in this manner may also add the user to one or more drop down menus, selection boxes, or scroll windows (e.g., scroll window **98** in FIG. **8**) used for quickly addressing emails.

A variety of other controls may be included with the highlighter tool panel **60** according to an embodiment of the invention. For example, in one embodiment of the invention, the tool panel **60** includes a button (e.g., the "PUT PEN DOWN" button **68**) that toggles the cursor between a standard cursor, and a highlighter pen cursor. When the active cursor is in highlighter pen mode, for example, the highlighting tool is active. This enables a user to select text or an object using a click and drag method, by which a user simply selects an object to highlight by dragging across an object while depressing a cursor control (e.g., mouse) button. When the active cursor is not in highlighting mode, a user may select an object (e.g., a portion of text or an image) and then press a button (not shown) to generate a highlight of the selected text. In one embodiment of the invention, the tool panel **60** includes a button or link (e.g., the "PAST HiLites" button **70** in FIG. **6**) that causes the web browser application to display a web page containing a list of past highlights made by the user. The list of past highlights may include a summary or excerpt from the previous highlights as well as a link to the full document from which the highlights are from. In addition, the past highlights web page may show additional information about each highlight, including but not limited to: the time and date the highlight was generated, the number of people that have viewed or selected the highlight, the address of persons with whom the user has shared the highlight, the number of other users who have highlighted the object, and/or annotations made by the user.

In one embodiment of the invention, a color palette **72** is included with the tool panel **60**. By selecting a color from the color palette, the user can manipulate the color of the active highlighter cursor, and ultimately the color of any highlights the user makes. This provides each user with the ability to create customized highlight color coding schemes. Accordingly, a user may mark-up different sections of an internet

document with different colors, such that each different color indicates additional information about the highlighted text. For instance, green highlighted text may support a particular proposition or indicate a positive treatment of a particular subject, while red highlighted text may indicate a negative treatment of the same subject. Those skilled in the art will appreciate the wide variety of user-customized color coding schemes that might be implemented according to an embodiment of the invention.

In one embodiment of the invention, the highlighter tool panel **60** includes a user/group filtering mechanism **74** which enables a user to select whose highlights should be displayed in a particular internet document on a per user or per group basis. For instance, referring again to FIG. **6**, by selecting the "SHOW GROUP 1 HiLites" box in the tool panel **60**, all highlights made by members of "GROUP 1" will be displayed to the user in the currently displayed interact document. Similarly, by selecting the "SHOW JANE DOE's HiLites" box, the user can control the display of highlights such that Jane Doe's highlights are also shown in the presently displayed document. Furthermore, in one embodiment of the invention, the filtering mechanism can be configured on a per document and/or per domain basis, such that a user can specify whose highlights the user would like to see when viewing particular documents, or documents from particular domains.

In one embodiment of the invention, the highlighter tool panel **60** includes a configuration setting that enables the user to display highlights that represent the consolidation of all user-generated highlights on a page. For example, when the check box illustrated in FIG. **6** next to the option "SHOW CONSOLIDATED COLOR INTENSITY SPECTRUM" with reference **77** is checked, the highlighting service will analyze all of the user-generated highlights associated with a particular internet document or web page. Rather than show individual highlights, the highlighting service causes portions of the internet document to be highlighted in particular colors that represent the frequency with which that portion of the document has been highlighted. For example, when the check box **77** is selected, a portion of the document that has been highlighted by many users may be shown in red. Accordingly, under this scenario, a red highlight on a particular object indicates that the particular object has been highlighted by many users. A less frequently highlighted portion of the document may be highlighted in another color. In another embodiment, the particular shade of the color may indicated the frequency with which the portion of the document has been highlighted. In one embodiment of the invention, enabling the color intensity spectrum view of highlights automatically disables the user/group view of highlights. That is, when viewing highlights in the color intensity spectrum mode, user level highlights and/or group level highlights may not be shown.

Many of the configuration settings illustrated in FIG. **6** may also be accessed and adjusted via a highlighter web portal. For example, the highlighting service provides a web-based user interface where users can set certain configuration parameters to default settings. Accordingly, when a user invokes the highlighting service without the highlighter tool panel, any configuration settings previously established via the highlighter web portal will be active by default.

FIG. **7** illustrates an example of a user interface object, referred to herein as a highlighter toolbar **78**, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention. Similar to the highlighter tool panel **60** illustrated in FIG. **6**, the highlighter toolbar **78** is a user interface object that provides a variety of controls and features associated with the highlighting service. In one embodiment of the invention, the highlighter toolbar includes the control objects described above in connection with the highlighter tool panel **60**, including but not limited to an address bar for navigating, an email address bar for sharing the currently displayed document with any user-generated highlights, a button to toggle the active highlighter cursor on and off, a button to access previously generated highlights, a button to access previously saved pages, a color palette to change the color of highlights, and a mechanism for selecting and filtering the highlights that are displayed on an internet document on a per user or per group basis. In addition, in one embodiment of the invention, the toolbar may include third-party tools. For example, the toolbar may provide one or more control objects enabling the user to quickly and easily gain access to a third-party tool, service, or application.

FIG. **8** illustrates an example of a user interface object, referred to herein as a collaboration panel **90**, which enables a user to share an internet document containing user-generated highlights with another user, according to an embodiment of the invention. As illustrated in FIG. **8**, in one embodiment of the invention the collaboration panel **90** is a mouseover window or box that appears when a user moves the highlighter cursor **92** over a particular highlight **80** in the currently displayed internet document. The collaboration panel **90** includes a text entry box **94** where a user can provide a comment about the particular highlighted object. In addition, the collaboration panel **90** includes an email address bar **96** where the user can enter one or more email addresses. Also, the collaboration panel includes a scroll window **98** with a list of other users and groups with whom the user may be associated. By checking a box, or otherwise selecting another user or group, the user can quickly address an email to the user or group. After selecting and/or entering the names of those persons/groups to receive an email, the user simply selects the "SEND" button **100** to send a copy of the currently displayed internet document, including any highlighted objects (e.g., highlights **80** and **82**), embedded within an email. In one embodiment of the invention, the email server **39** of the highlighter server **10** will generate and send the email to the selected recipients. Accordingly, the recipient of such an email will be able to view the entire internet document including any highlights without downloading any additional software and/or requesting any additional internet documents. In an alternative embodiment of the invention, a link to a highlighted document may be provided in the email.

In one embodiment of the invention, the collaboration panel also provides a view of any comments that a user may have entered about a particular highlight. For instance, if a user sends a comment to another user, the other user may view the comment by simply putting the highlighter cursor over the highlight. If more than one comment is associated with a particular highlight, the comments will be displayed in order such that a user can follow along with a virtual conversation based on an exchange of comments. Just as a user may filter the highlights that are displayed, in one embodiment of the invention, comments may optionally be filtered so that a user only sees comments from particular users, or groups, of interest.

FIG. **9** illustrates an example of an email with user-generated highlights, according to an embodiment of the invention. As illustrated in FIG. **9**, an email generated and sent via the collaboration panel includes a header portion **106** where the comment **108** that was entered in the text box **94** of the collaboration panel **90** is displayed. This provides the recipi-

ent of the email with additional information and context as to what is relevant about the document as a whole, and the highlight **80** in particular.

In one embodiment of the invention, the header portion **106** of the email also includes an address bar **110**, where a user can enter the address or URL of a web site or document, and begin a highlighting session. For instance, by entering a URL in the address bar **110** of the email, and then pressing the "START HiLiting" button **112**, a web browser window will open and the requested document will be displayed along with a highlighter tool panel **90**.

Highlighter Web Portal

FIG. **10** illustrates a top level page (e.g. a home page) for a highlighter web portal, according to an embodiment of the invention. As illustrated in FIG. **10**, in one embodiment of the invention, the home page of a highlighter web portal includes a text entry box **114** where a user can enter a URL or document address to begin a highlighting session. For example, by simply typing in the address of an internet document in the text entry box **114** and then pressing the "START HiLiting" button, a user invokes a highlighting session with the document corresponding with the address entered.

FIG. **11** illustrates a contact management page of a highlighter service, according to an embodiment of the invention. As illustrated in FIG. **11**, in one embodiment of the invention, the highlighting service includes a contacts list where a user can enter and maintain personal and/or business contact information. In one embodiment, as a user shares highlights via email, the email addresses of the recipients will automatically be saved into the user's contact list. In addition, as users are added as contacts, the email addresses of those users will automatically populate certain user interface objects, such as the scroll window **98** in FIG. **8**.

In one embodiment of the invention, the contact management interface may also provide a mechanism for users to build out or define a social network. For example, a user may specify which contacts to include in his or her social network. Accordingly, several of the features described herein may be configured on the basis of one's social network. For example, a user may select to see all highlights from any member within his social network.

FIG. **12** illustrates a HiLites summary page, according to an embodiment of the invention. In one embodiment of the invention, a highlighter web portal provides the user with easy access to a list of all previously generated highlights of a particular user (including oneself). In addition to showing a thumbnail **115** of the document which the highlights are from, the list also includes a variety of icons enabling the user to take several actions in connection with a selected highlight, or a comment associated with a highlight. For instance, a user may rank or rate a highlight, a comment, and/or an internet document containing a highlight or comment. In one embodiment, a user may select a link to see more highlights or comments from a particular user. In addition, the user may select a button or link enabling the user to subscribe to a particular user's highlighting activities. Accordingly, as the particular user makes new highlights, a copy of such highlights and/or the internet document containing the highlights may be sent to the user in real-time, or on a predetermined or user-configured periodic schedule.

FIG. **13** illustrates an example of a web page providing a snippet of code **120** for adding a user interface object, referred to herein as a highlighter roll, to a third-party web page, according to an embodiment of the invention. The snippet of code shown in FIG. **13** can easily be added to another web page by copying and pasting the code. The highlighter roll, once embedded in another web page, will display highlights of a particular user. The code snippet **120** is generated automatically in response to user-specified parameters **122** that are provided at one or more user interface input mechanisms (e.g., drop down lists, text entry boxes, and so on). Accordingly, the highlighter roll can be configured to show a particular number of previous highlights, scroll highlights up or down, scroll at variable speeds, and display the highlights in various user-selected formats. In one embodiment of the invention, the highlighter roll may query the highlighting service to receive a predetermined number of the most recent highlights by a user, by a group, or by everyone, or based on a particular topic, or by a grouping of particular websites or URLs. By inputting various configuration parameters, a user can display a preview of what the highlighter roll will look like when embedded in a third-party web page.

FIG. **14** illustrates an example of a web page with a user interface object referred to herein as a highlight roll **126**, according to an embodiment of the invention. As described in connection with FIG. **13**, the code for displaying a highlight roll **126** may be automatically generated by a highlighting service web portal, such that a blogger or another web author can easily copy and paste the code into his or her own web page, thereby adding the highlight roll **126** to his or her web page and enabling the display of user-generated highlights. As illustrated in FIG. **14**, the highlight roll has a title, "JANE DOE'S HIGHLIGHTS:" as well as a text box **126** where highlights are displayed. The title is easily configurable by providing a configuration parameter as described in connection with FIG. **13**. In various embodiments of the invention, multiple highlights may scroll up or down in the text box. In one embodiment of the invention, the highlights will automatically and dynamically update as a user continues to highlight new objects on new internet documents. Accordingly, a highlight roll **126** provides an excellent means of displaying a user's recent web activity, to the extent that a user's highlighting activity represents his or her web activity. A highlight roll may be particularly useful on blogging websites, but also on news websites, corporate websites, social networking websites, and others.

In one embodiment of the invention, a query is used to select the particular highlights from a highlighting service that are to be displayed in a highlight roll. Accordingly, the selection parameters for the query may be configured by a user, such that a wide variety of highlight characteristics can be used to select the particular highlights to be displayed in a highlight roll. In one embodiment of the invention, a highlight roll may be configured to display highlights from a particular user, or group of users. In another embodiment, the highlight roll may be configured to randomly query the highlighting service for user-generated highlights. In yet another embodiment, the highlight roll may be configured to query the highlighting service for highlights that were made on a particular internet document, website, or group of websites. In another embodiment of the invention, the highlight roll may be configured to query the highlighting service for highlights that contain a particular key word or words. In yet another embodiment, the highlight roll may be configured to query the highlighting service for highlights of images.

In one embodiment of the invention, a highlight roll may be used on a blog website. For example, a blogger may use a highlight roll to enhance the content on his or her blog site. Alternatively, the highlight roll may take the place of a blog altogether. For example, by displaying a highlight roll in place of a blog, a user may author blog entries by simply highlighting portions of other internet documents, and then providing comments about the highlighted portions of the

document. Those skilled in the art will appreciate that a highlight roll may be used in other contexts not specifically addressed herein.

The foregoing description of various implementations of the invention has been presented for purposes of illustration and description. It is not exhaustive and does not limit the invention to the precise form or forms disclosed. Furthermore, it will be appreciated by those skilled in the art that the present invention may find practical application in a variety of alternative contexts that have not explicitly been addressed herein. Finally, the illustrative processing steps performed by a computer-implemented program (e.g., instructions) may be executed simultaneously, or in a different order than described above, and additional processing steps may be incorporated. The invention may be implemented in hardware, software, or a combination thereof. When implemented partly in software, the invention may be embodied as a set of instructions stored on a computer-readable medium. The scope of the invention is defined by the claims and their equivalents.

What is claimed is:

1. A computer-implemented method, comprising:

at a highlighting server hosting a highlighting service, receiving a request from a client web browser for an internet document hosted at a content server, the request, directed to the highlighting server, including a content server address for the internet document,

the highlighting service providing a highlighting web portal includes a text entry box for receiving the request;

the highlighting server extracting the content server address for the internet document from the request sent by the client web browser;

the highlighting server thereafter relaying the internet document to the client web browser along with executable highlighting code; and,

the highlighting server, responsive to a query from the executable highlighting code, processing the query to determine whether a uniform resource locator (URL) of the internet document is associated with any previously selected content portions, thereby determining whether or not the internet document has previously had portions of content selected by a user, and, if so, determining whether a current user viewing the internet document has configured highlight filtering mechanism to display any of the previously generated user highlights, and, if so, communicating one or more highlights to the executable highlighting code so as to enable the internet document to display selected content portions within the internet document according to user configurable settings of the highlight filtering mechanism;

prior to relaying the internet document to the client web browser, forwarding the request to the content server and, in turn, receiving the internet document from the content server; and, modifying one or more object references included in the internet document so that a subsequent request for an object associated with the one or more object references is directed to the highlighting server.

2. The computer-implemented method of claim **1**, wherein the highlighting service includes intelligent highlight identification logic to determine where in the internet document a highlight is to be positioned, when the internet document has changed since the time the highlight was originally selected.

3. The computer-implemented method of claim **1**, the highlight filtering mechanism enabling a user to selectively filter highlights to be displayed based on various characteristics.

4. The computer-implemented method of claim **3**, wherein the characteristics utilized to filter the highlights to be displayed to a user include: source of a highlight; time of highlight; rating of a highlight; number of comments associated with the highlight; user group of highlight; and/or source of comments associated with the highlight.

* * * * *

EXHIBIT 7

US010866713B2

(12) **United States Patent**
Chandra

(10) **Patent No.: US 10,866,713 B2**
(45) **Date of Patent: Dec. 15, 2020**

(54) **HIGHLIGHTING ON A PERSONAL DIGITAL ASSISTANT, MOBILE HANDSET, EBOOK, OR HANDHELD DEVICE**

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(72) Inventor: **Rohit Chandra**, Sunnyvale, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 153 days.

(21) Appl. No.: **16/354,017**

(22) Filed: **Mar. 14, 2019**

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 15/042,977, filed on Feb. 12, 2016, now Pat. No. 10,289,294, which is a continuation-in-part of application No. 13/831,331, filed on Mar. 14, 2013, now Pat. No. 9,292,617, which is a continuation-in-part of application No. 11/766,786, filed on Jun. 21, 2007, now Pat. No. 8,910,060.

(60) Provisional application No. 60/815,467, filed on Jun. 22, 2006.

(51) **Int. Cl.**

G06F 17/00	(2019.01)
G06F 3/0484	(2013.01)
G06F 9/451	(2018.01)
G06F 15/02	(2006.01)
G06F 40/169	(2020.01)
G06F 3/033	(2013.01)
H04L 29/08	(2006.01)

(52) **U.S. Cl.**

CPC ***G06F 3/04842*** (2013.01); ***G06F 9/451*** (2018.02); ***G06F 15/0291*** (2013.01); ***G06F 40/169*** (2020.01); *G06F 3/033* (2013.01); *G06F 3/04847* (2013.01); *H04L 67/02* (2013.01)

(58) **Field of Classification Search**

CPC G06F 3/04842; G06F 40/169; G06F 9/451; G06F 15/0291; G06F 3/04847; G06F 3/033; H04L 67/02

See application file for complete search history.

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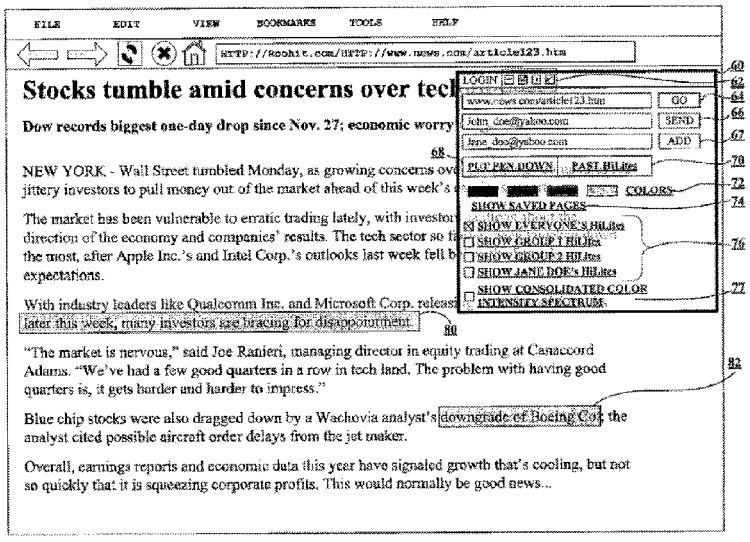
Primary Examiner — Andrew T McIntosh

(57) **ABSTRACT**

A method, apparatus, and system for enabling a user to selectively make one or more highlights in a currently displayed document on a mobile, handheld, eBook reader, or similar device are disclosed. The user-generated highlights are persistent over user-initiated cursor control activities as well as persistent over reading sessions. Furthermore, the highlighting functionality can be invoked without downloading and installing any custom software components, and without explicitly generating a user account.

21 Claims, 14 Drawing Sheets



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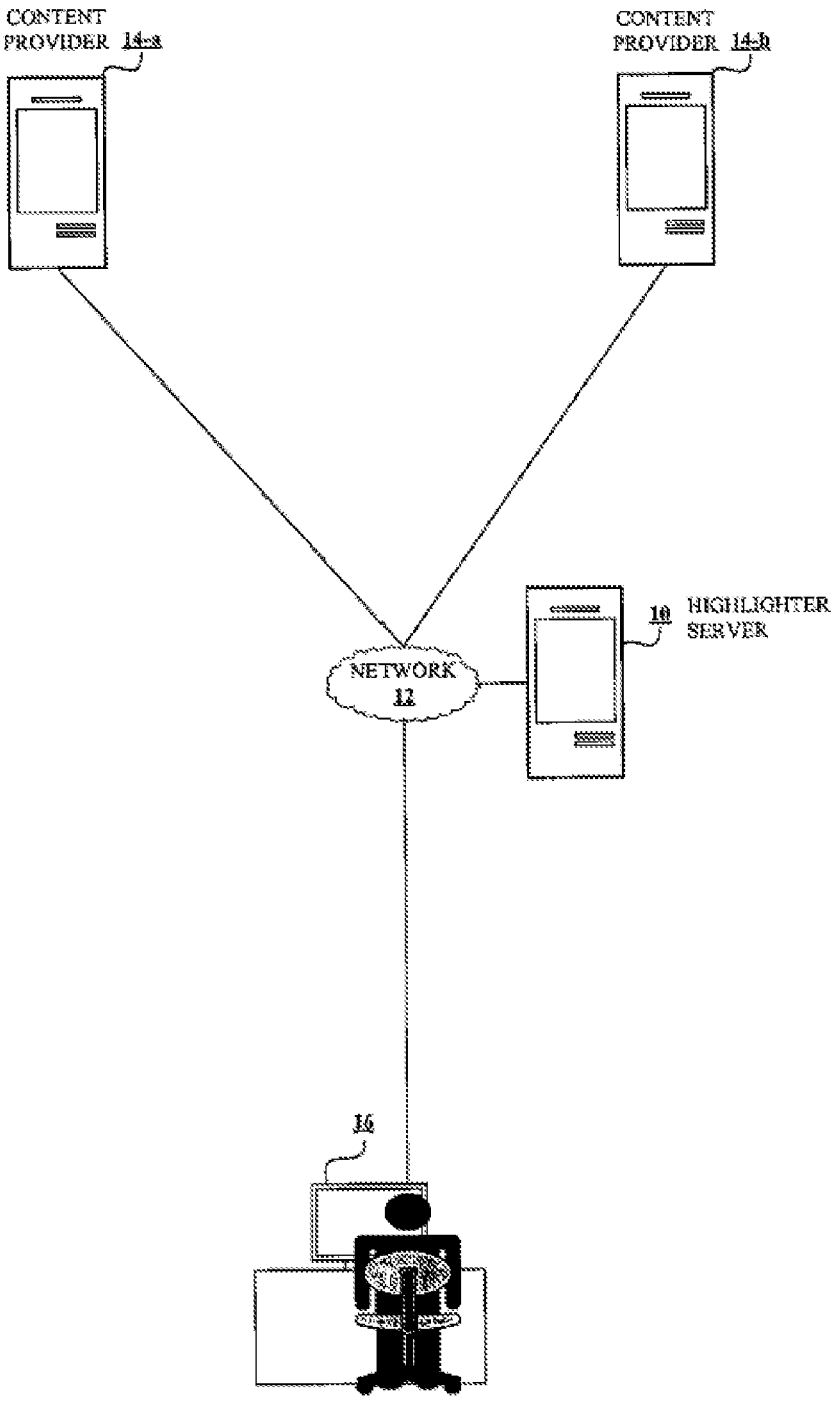

CONTENT PROVIDER 14-a
CONTENT PROVIDER 14-b
NETWORK 12
10
HIGHLIGHTER SERVER
16

FIG. 1

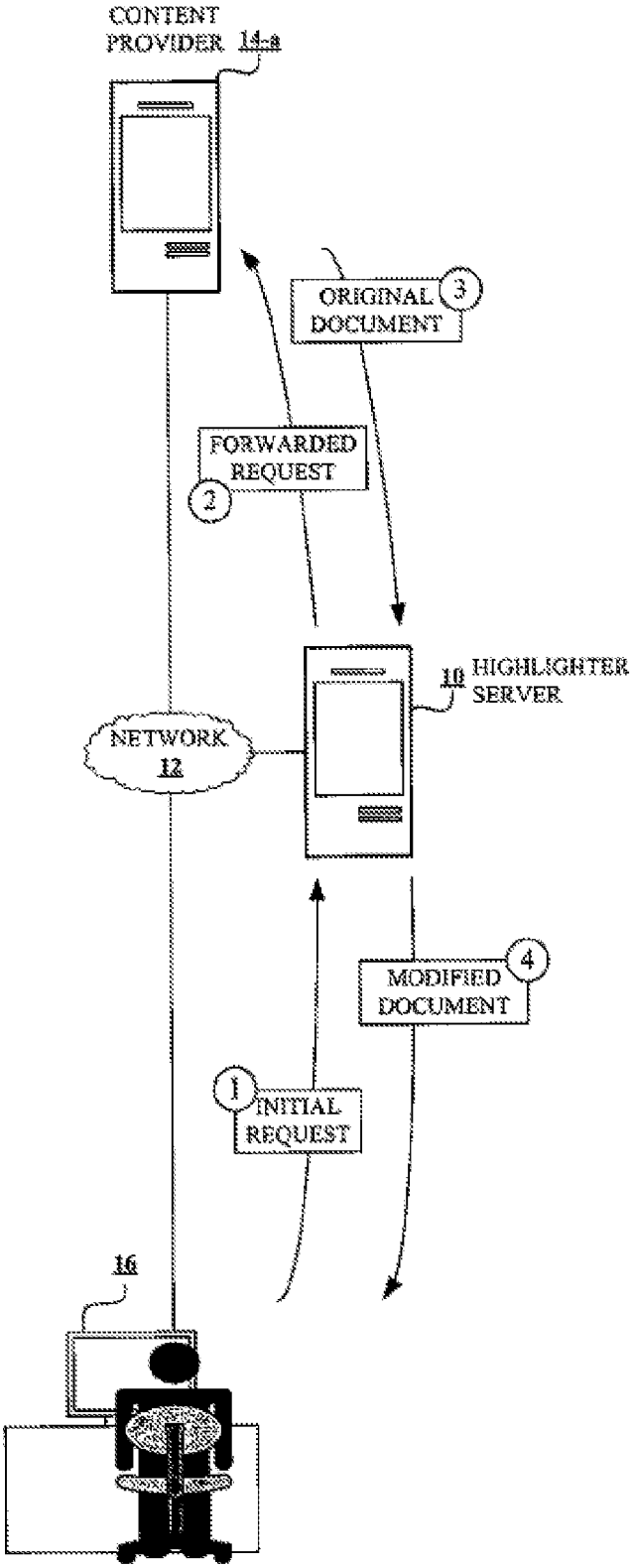

CONTENT PROVIDER 14-a
ORIGINAL DOCUMENT 3
FORWARDED REQUEST 2
10 HIGHLIGHTER SERVER
NETWORK 12
MODIFIED DOCUMENT 4
1 INITIAL REQUEST
16

FIG. 2

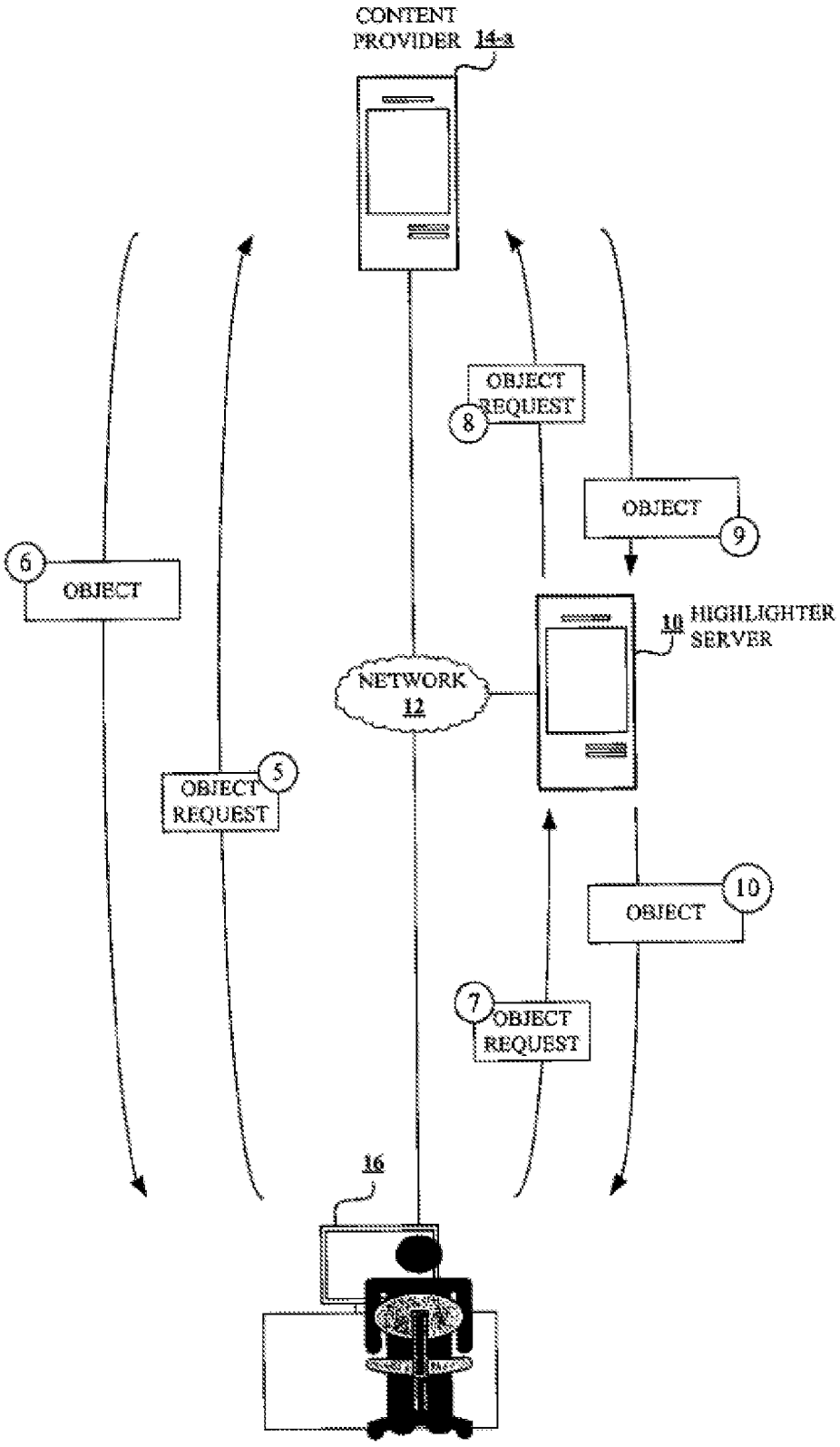

CONTENT PROVIDER 14-a
OBJECT REQUEST 8
OBJECT 9
6 OBJECT
10 HIGHLIGHTER SERVER
NETWORK 12
OBJECT REQUEST 5
OBJECT 10
7 OBJECT REQUEST
16

FIG. 3

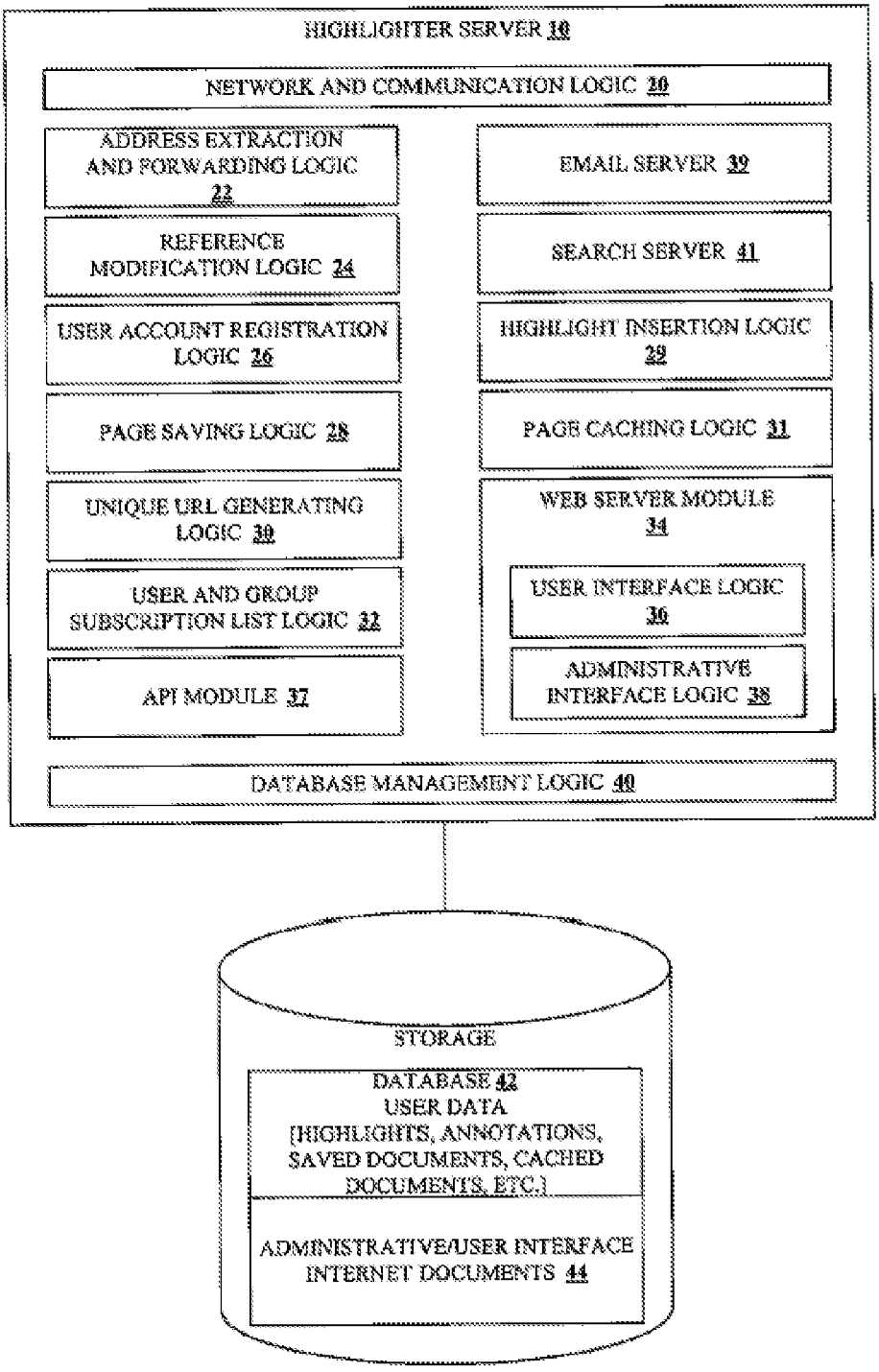

HIGHLIGHTER SERVER 10
NETWORK AND COMMUNICATION LOGIC 20
ADDRESS EXTRACTION AND FORWARDING LOGIC 22
REFERENCE MODIFICATION LOGIC 24
USER ACCOUNT REGISTRATION LOGIC 26
PAGE SAVING LOGIC 28
UNIQUE URL GENERATING LOGIC 30
USER AND GROUP SUBSCRIPTION LIST LOGIC 32
API MODULE 37
EMAIL SERVER 39
SEARCH SERVER 41
HIGHLIGHT INSERTION LOGIC 29
PAGE CACHING LOGIC 31
WEB SERVER MODULE 34
USER INTERFACE LOGIC 36
ADMINISTRATIVE INTERFACE LOGIC 38
DATABASE MANAGEMENT LOGIC 40
STORAGE
DATABASE 42
USER DATA [HIGHLIGHTS, ANNOTATIONS, SAVED DOCUMENTS, CACHED DOCUMENTS, ETC.]
ADMINISTRATIVE/USER INTERFACE INTERNET DOCUMENTS 44

FIG. 4

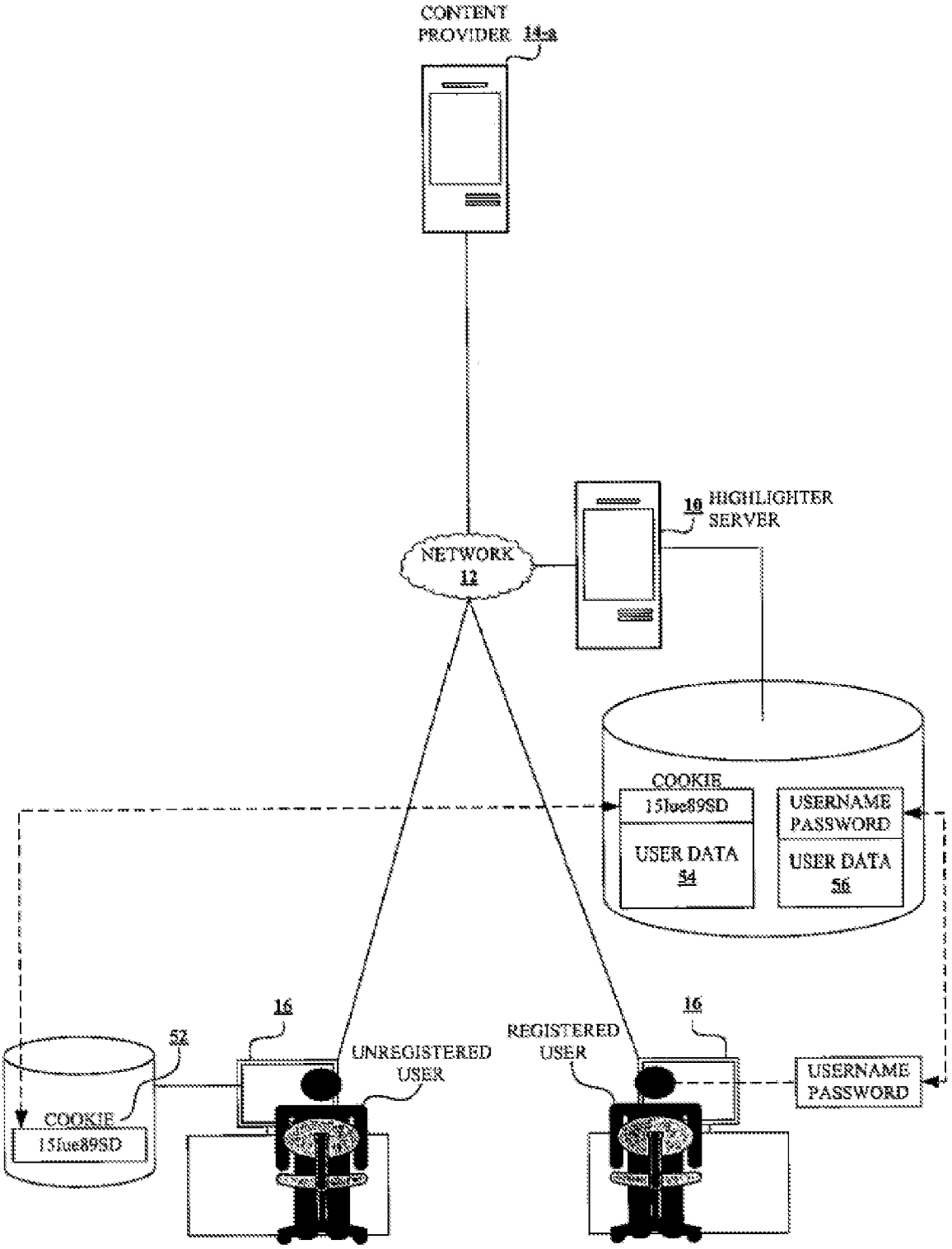

CONTENT PROVIDER 14a
NETWORK 12
10 HIGHLIGHTER SERVER
COOKIE
15ue89SD
USER DATA 54
USERNAME PASSWORD
USER DATA 56
16
52
UNREGISTERED USER
REGISTERED USER
16
USERNAME PASSWORD
COOKIE
15ue89SD

FIG. 5

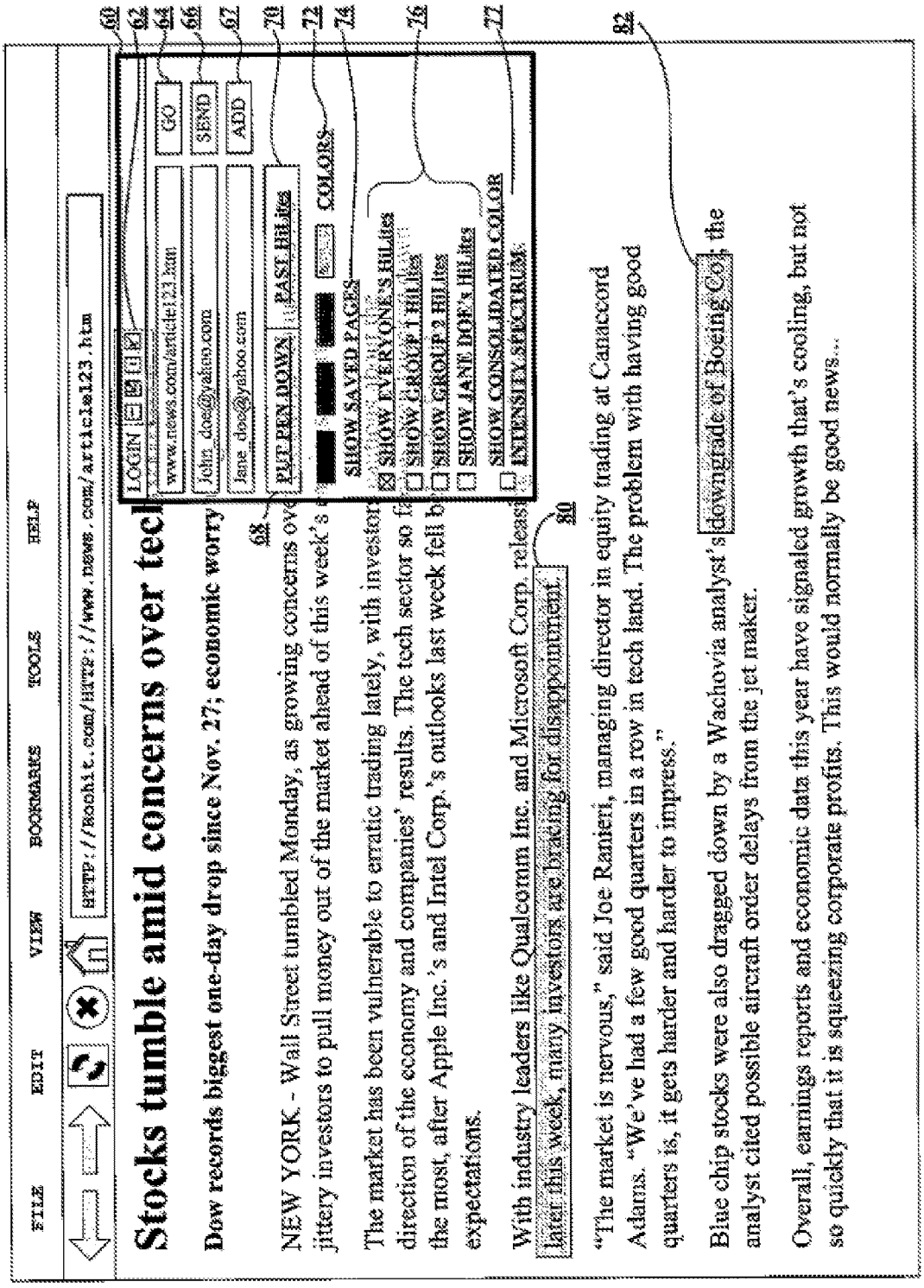
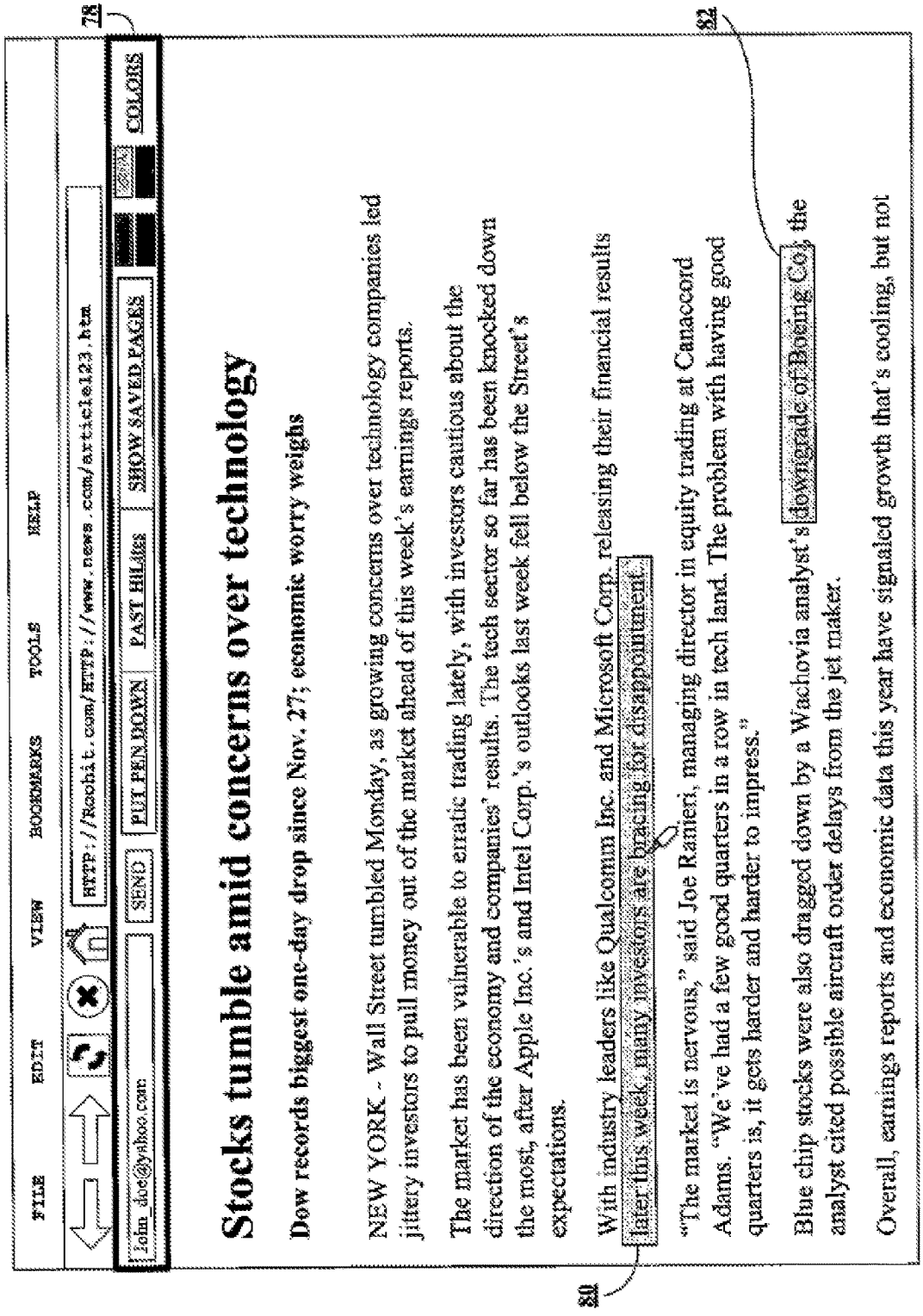

FILE
EDIT
VIEW
BOOKMARKS
TOOLS
HELP
http://kochic.com/HTTP://www.news.com/article123.htm
Stocks tumble amid concerns over tech
Dow records biggest one-day drop since Nov. 27; economic worry
NEW YORK - Wall Street tumbled Monday, as growing concerns ov
jittery investors to pull money out of the market ahead of this week's
The market has been vulnerable to erratic trading lately, with investor
direction of the economy and companies' results. The tech sector so fa
the most, after Apple Inc.'s and Intel Corp.'s outlooks last week fell b
expectations.
With industry leaders like Qualcomm Inc. and Microsoft Corp. releas
later this week, many investors are bracing for disappointment.
"The market is nervous," said Joe Ranieri, managing director in equity trading at Canaccord Adams. "We've had a few good quarters in a row in tech land. The problem with having good quarters is, it gets harder and harder to impress."
Blue chip stocks were also dragged down by a Wachovia analyst's downgrade of Boeing Co., the analyst cited possible aircraft order delays from the jet maker.
Overall, earnings reports and economic data this year have signaled growth that's cooling, but not so quickly that it is squeezing corporate profits. This would normally be good news...
LOGIN
www.news.com/article123.htm
John_doe@yahoo.com
Jane_doe@yahoo.com
PUT PEN DOWN
PAST HILites
GO
SEND
ADD
COLORS
SHOW SAVED PAGES
SHOW EVERYONE'S HILites
SHOW GROUP 1 HILites
SHOW GROUP 2 HILites
SHOW JANE DOE's HILites
SHOW CONSOLIDATED COLOR
INTENSITY SPECTRUM
60
62
64
66
67
70
72
74
76
77
80
82
68

FIG. 6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HTTP://Rocbit.com/HTTP://www.news.com/article123.htm
John_doe@yahoo.com
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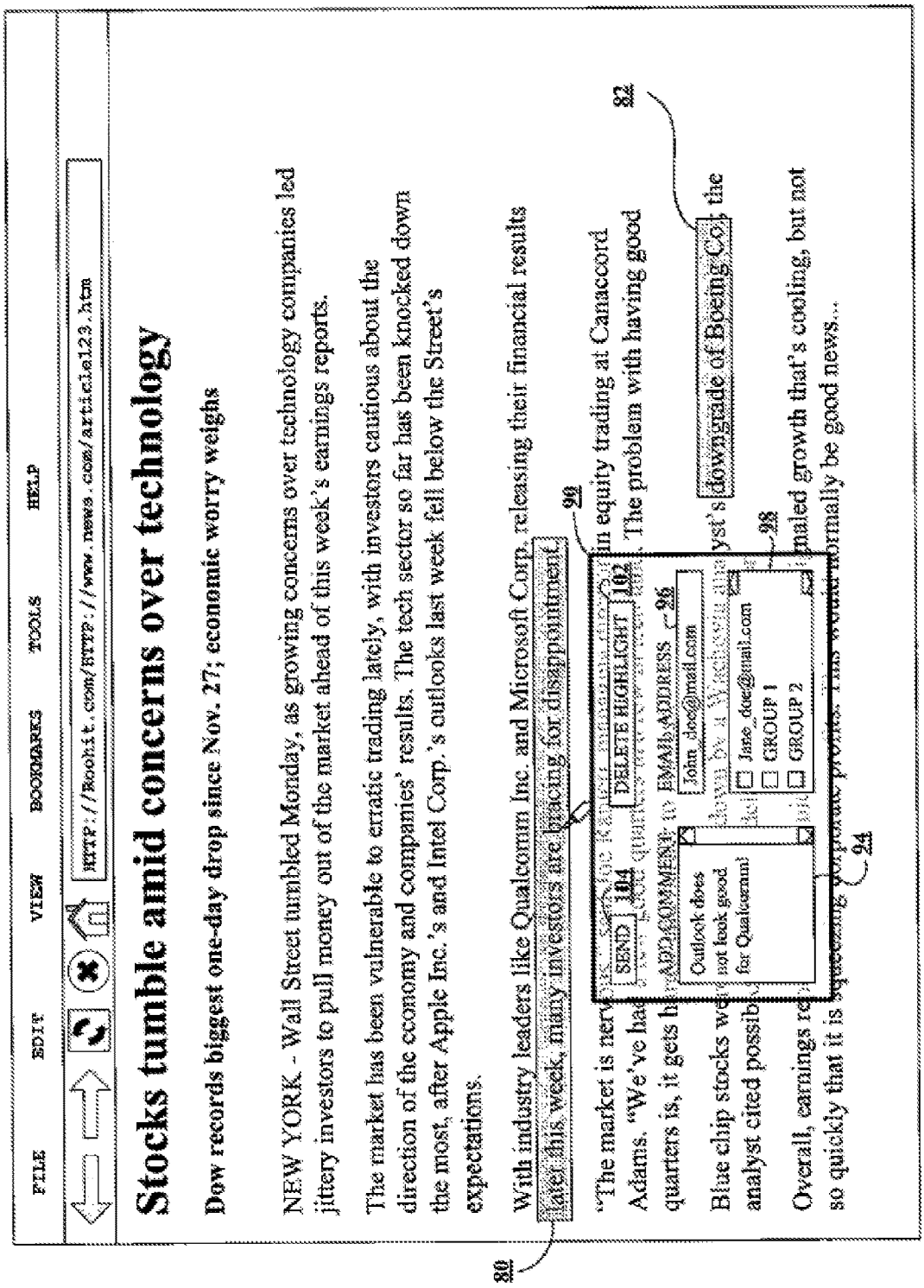
Stocks tumble amid concerns over technology
Dow records biggest one-day drop since Nov. 27; economic worry weighs
NEW YORK - Wall Street tumbled Monday, as growing concerns over technology companies led jittery investors to pull money out of the market ahead of this week's earnings reports.
The market has been vulnerable to erratic trading lately, with investors cautious about the direction of the economy and companies' results. The tech sector so far has been knocked down the most, after Apple Inc.'s and Intel Corp.'s outlooks last week fell below the Street's expectations.
With industry leaders like Qualcomm Inc. and Microsoft Corp. releasing their financial results later this week, many investors are bracing for disappointment.
80
"The market is nervous," said Joe Ramieri, managing director in equity trading at Canaccord Adams. "We've had a few good quarters in a row in tech land. The problem with having good quarters is, it gets harder and harder to impress."
82
Blue chip stocks were also dragged down by a Wachovia analyst's downgrade of Boeing Co., the analyst cited possible aircraft order delays from the jet maker.
Overall, earnings reports and economic data this year have signaled growth that's cooling, but not

FIG. 7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normally be good news...
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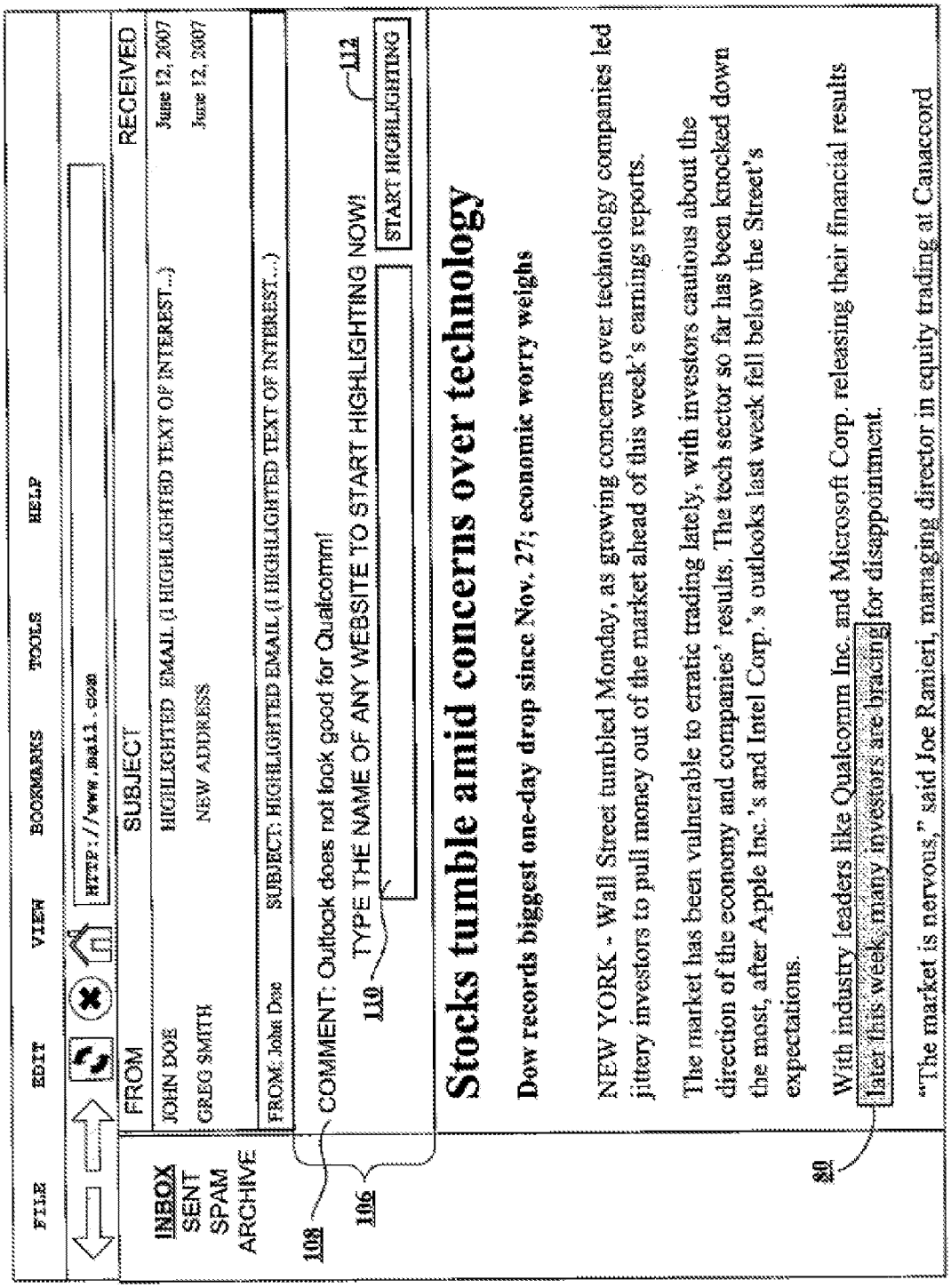
FIG. 8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JOHN DOE
HIGHLIGHTED EMAIL (1 HIGHLIGHTED TEXT OF INTEREST...)
June 12, 2007
GREG SMITH
NEW ADDRESS
June 12, 2007
FROM: John Doe
SUBJECT: HIGHLIGHTED EMAIL (1 HIGHLIGHTED TEXT OF INTEREST...)
108
COMMENT: Outlook does not look good for Qualcomm!
106
110
TYPE THE NAME OF ANY WEBSITE TO START HIGHLIGHTING NOW!
112
START HIGHLIGHTING
Stocks tumble amid concerns over technology
Dow records biggest one-day drop since Nov. 27; economic worry weighs
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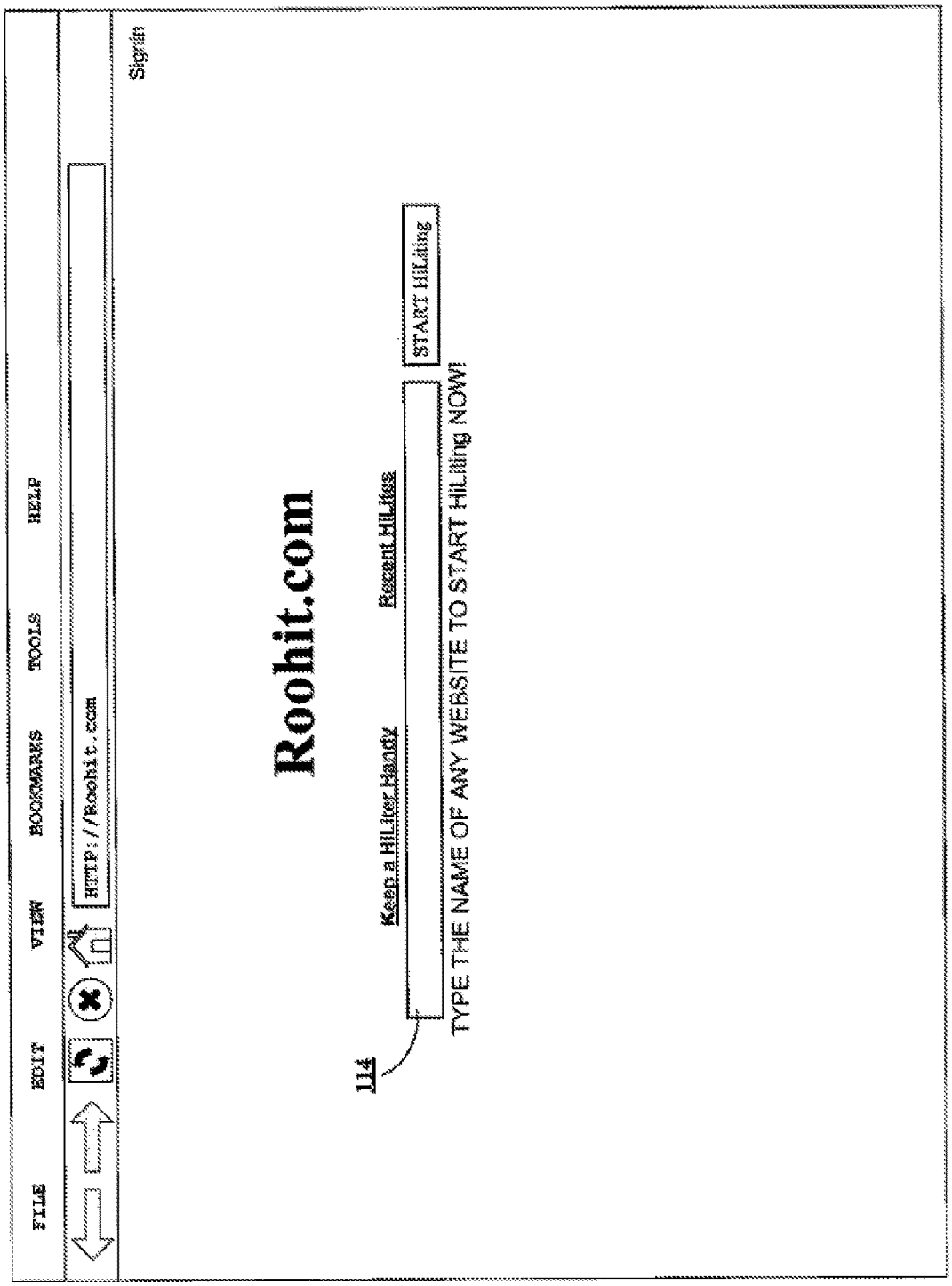
80
"The market is nervous," said Joe Ranieri, managing director in equity trading at Canaccord

FIG. 9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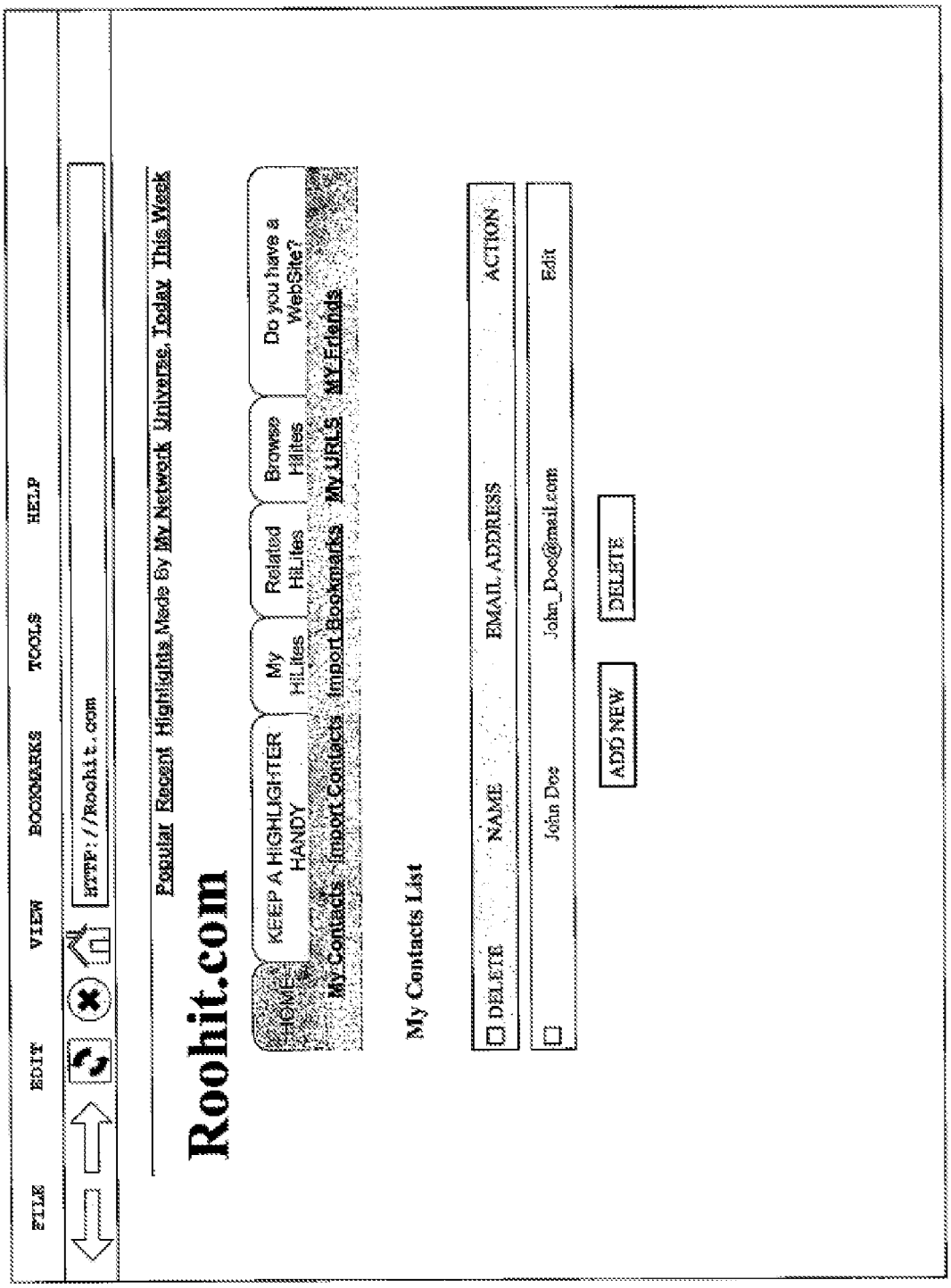
Keep a HiLiter Handy
Recent HiLites
START HiLiting
114
TYPE THE NAME OF ANY WEBSITE TO START HiLiting NOW!

FIG. 10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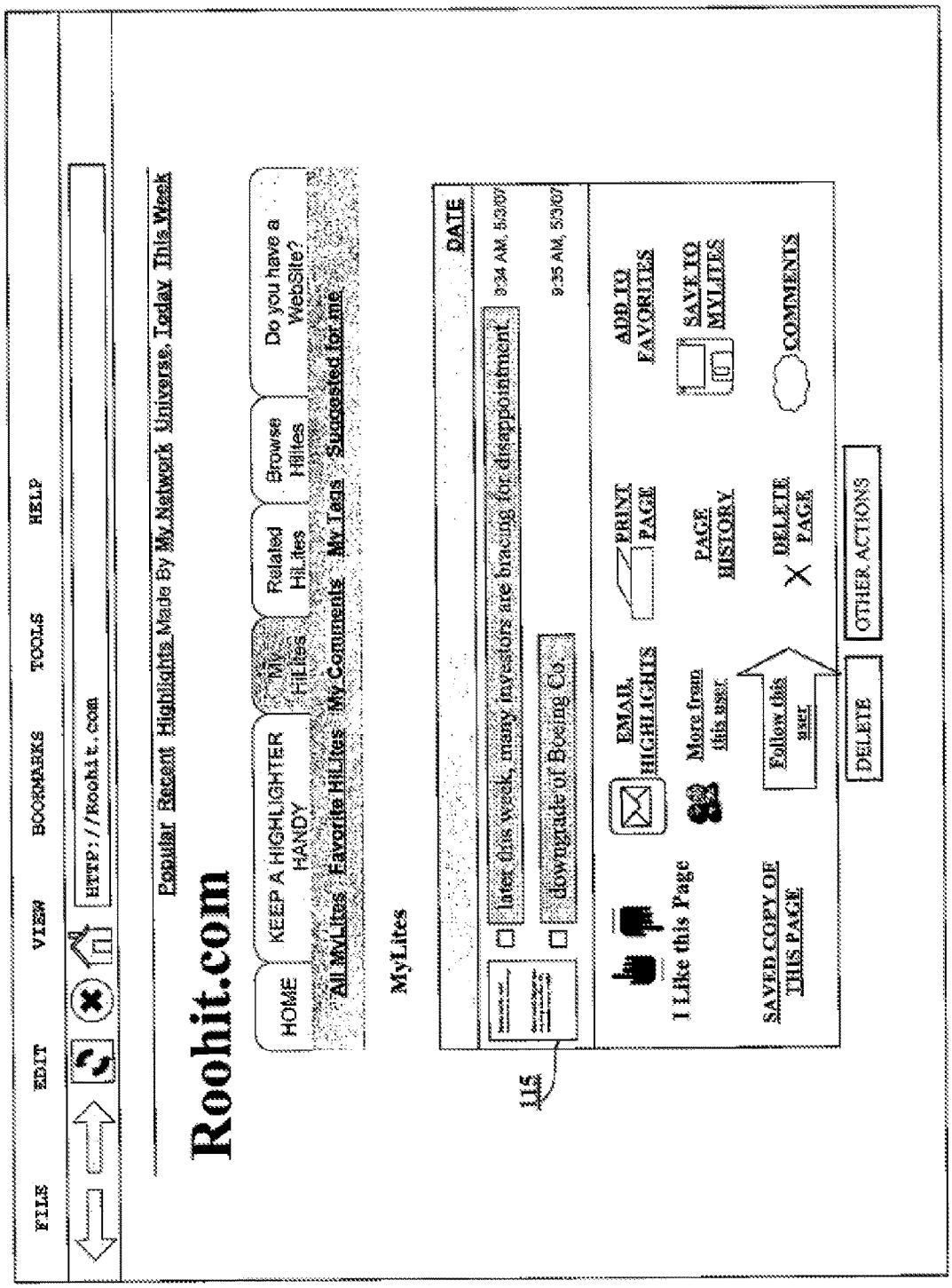
My HiLites
Related HiLites
Browse HiLites
Do you have a WebSite?
My Contacts Import Contacts Import Bookmarks My URLS MY Friends
My Contacts List
DELETE NAME EMAIL ADDRESS ACTION
John Doe John_Doe@mail.com Edit
ADD NEW
DELETE

FIG. 11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Do you have a WebSite?
All MyLites Favorite HiLites My Comments My Tags Suggested for me
MyLites
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later this week, many investors are bracing for disappointment
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downgrade of Boeing Co.
9:35 AM, 5/3/07
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1 Like this Page
EMAIL HIGHLIGHTS
PRINT PAGE
ADD TO FAVORITES
More from this user
PAGE HISTORY
SAVE TO MYLITES
SAVED COPY OF THIS PAGE
Follow this user
DELETE PAGE
COMMENTS
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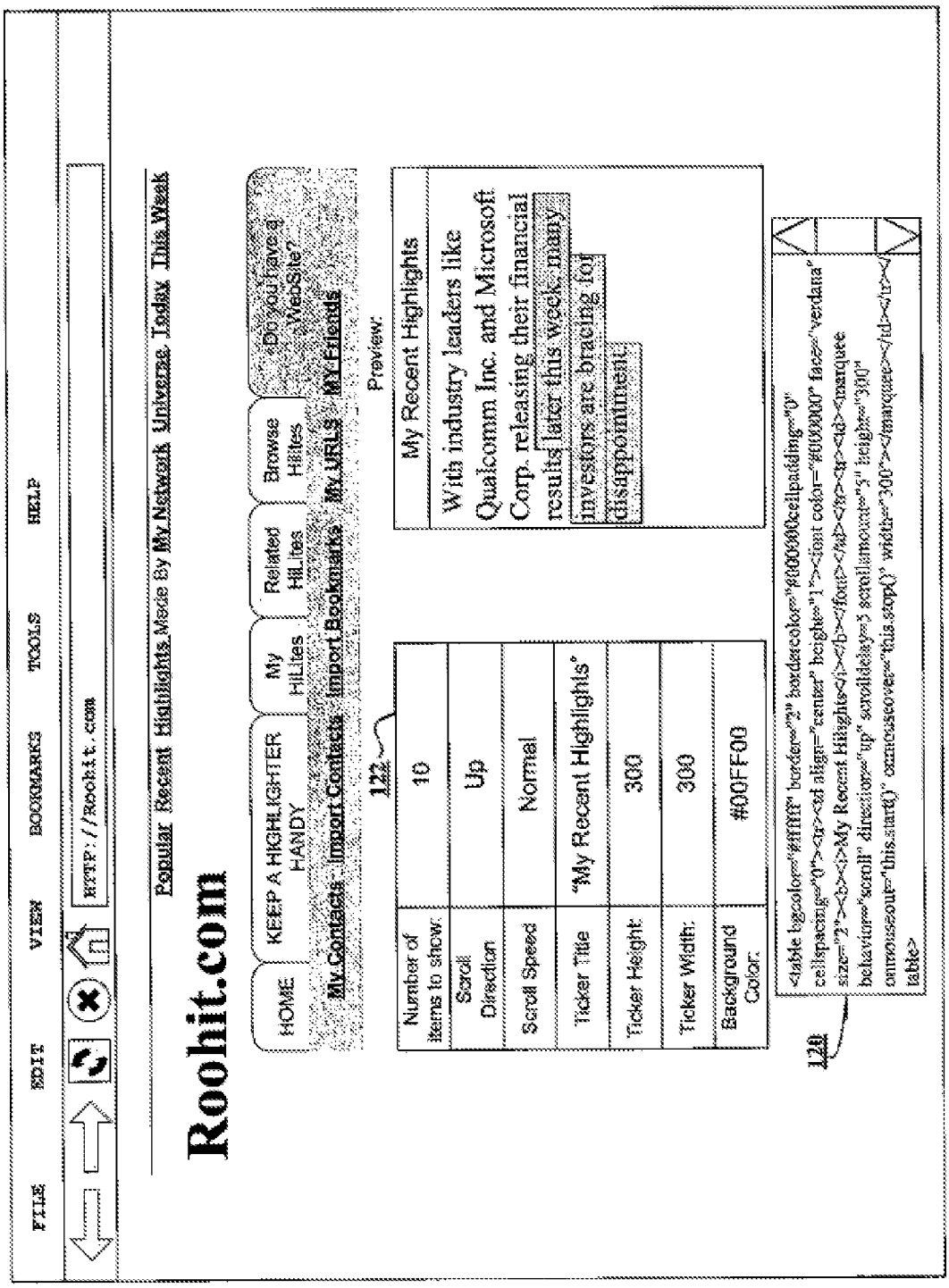
OTHER ACTIONS

FIG. 12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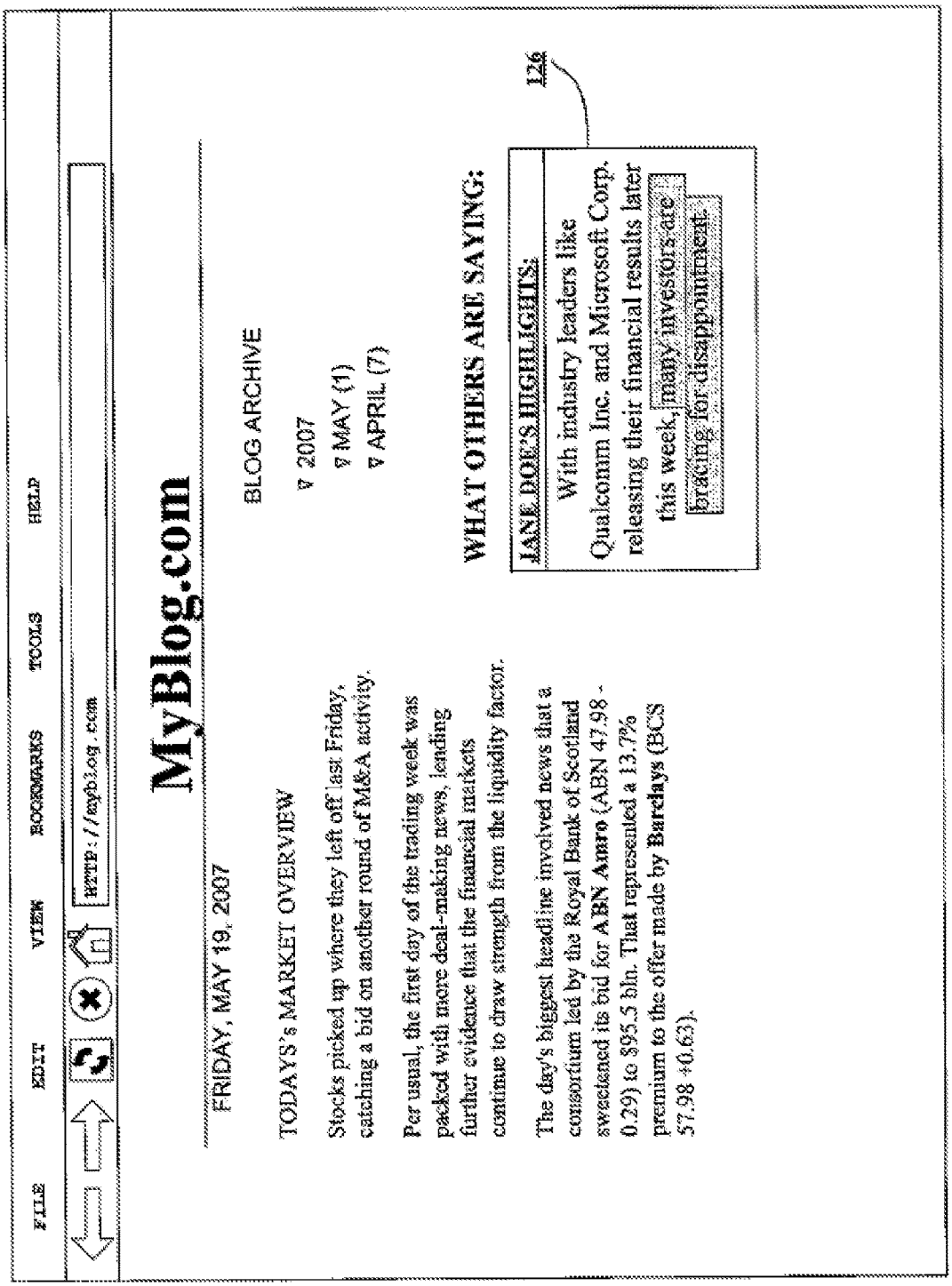
Related HiLites
Browse HiLites
Do you have a WebSite?
My Contacts Import Contacts Import Bookmarks My URLS MY Friends
122
Preview:
Number of items to show: 10
Scroll Direction Up
Scroll Speed Normal
Ticker Title "My Recant Highlights"
Ticker Height 300
Ticker Width: 300
Background Color #00FF00
My Recent Highlights
With industry leaders like Qualcomm Inc. and Microsoft Corp. releasing their financial results later this week, many investors are bracing for disappointment.
120
<table bgcolor="#ffffff" border="2" bordercolor="#000000" cellpadding="0" cellspacing="0"><tr><td align="center" height="1">My Recent Hilights</td></tr><tr><td><marquee behavior="scroll" direction="up" scrollamount="3" scrolldelay="3" height="300" onmouseout="this.start()" onmouseover="this.stop()" width="300"></marquee></td></tr></table>

FIG. 13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MyBlog.com
FRIDAY, MAY 19, 2007
TODAYS's MARKET OVERVIEW
Stocks picked up where they left off last Friday, catching a bid on another round of M&A activity.
Per usual, the first day of the trading week was packed with more deal-making news, lending further evidence that the financial markets continue to draw strength from the liquidity factor.
The day's biggest headline involved news that a consortium led by the Royal Bank of Scotland sweetened its bid for ABN Amro (ABN 47.98 - 0.29) to $95.5 bln. That represented a 13.7% premium to the offer made by Barclays (BCS 57.98 +0.63).
BLOG ARCHIVE
2007
MAY (1)
APRIL (7)
WHAT OTHERS ARE SAYING:
126
JANE DOE'S HIGHLIGHTS:
With industry leaders like Qualcomm Inc. and Microsoft Corp. releasing their financial results later this week, many investors are bracing for disappointment.

FIG. 14

HIGHLIGHTING ON A PERSONAL DIGITAL ASSISTANT, MOBILE HANDSET, EBOOK, OR HANDHELD DEVICE

RELATED APPLICATIONS

The present application is a continuation-in-part of U.S. patent application Ser. No. 15/042,977 filed on Feb. 12, 2016. U.S. patent application Ser. No. 15/042,977 was a continuation-in-part of U.S. patent application Ser. No. 13/831,331 filed on Mar. 14, 2013 (now issued as U.S. Pat. No. 9,292,617). U.S. patent application Ser. No. 13/831,331 was a continuation-in-part of Ser. No. 11/766,786 filed on Jun. 21, 2007 (now issued as U.S. Pat. No. 8,910,060). U.S. patent application Ser. No. 11/766,786 claimed benefit of U.S. Provisional Patent Application with Ser. No. 60/815,467 filed on Jun. 22, 2006. Further Ser. No. 11/766,786 incorporated U.S. patent application Ser. No. 11/766,669 (now issued as U.S. Pat. No. 8,661,031), the contents of all of these applications are hereby incorporated by reference. Further, U.S. Pat. No. 7,966,623 filed on Jun. 22, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 7,844,891 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 7,966,623 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,156,178 filed on Mar. 5, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,352,573 filed on Jun. 22, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,661,031 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,910,060 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. patent application Ser. No. 11/766,791 is also incorporated by reference into the present application.

FIELD

The present invention relates generally to computer network-based information retrieval techniques. More particularly, the present invention relates to methods and systems that enable a user to mark-up or highlight information (such as text or images) on an internet document for better visibility, later retrieval and/or sharing with one or more other users.

BACKGROUND

A wealth of information is available on the Internet, and particularly that segment of the Internet referred to generally as the World Wide Web. However, despite vast improvements in search engines, finding the particular information that one is interested in can still be a challenging and time-consuming task. Perhaps even more frustrating is the lack of tools available to enable a user to retrieve previously searched for and discovered information. In the realm of search and retrieval, search engines aid in the search but leave much to be desired when it comes to information retrieval.

One common mechanism used for information retrieval is referred to generally as a bookmark. A bookmark is a mechanism or function enabling a user to save a copy of a uniform resource locator (URL). For example, if a user finds an article of interest at URL, http://www.interesting-article-.com/article 12345.htm, the user can save the URL as a bookmark so that at a later time the user can simply select (e.g., with a mouse or other pointing device) the bookmark to reload the document associated with the URL. The user might choose to categorize the bookmarks. Traditionally, bookmarks have been facilitated by a web browser application and stored at the computer on which the web browser application resides. However, more recently online bookmarking services have provided users with a way to store bookmarks online, making the bookmarks accessible from any network-connected computer.

As a means of information retrieval, bookmarks have several shortcomings. One problem with bookmarks is they provide little, if any, explanation or context as to what it is about the associated document that may be significant. For instance, a bookmark simply associates a URL with a document. A user may generate a bookmark for a particular web page because of a single passage in an article, or a particular blog entry on a web page with many blog entries. When the user retrieves the web page at a later time by means of selecting the bookmark, the user may not be able to remember what it is that is significant about the web page and why he or she saved the bookmark in the beginning.

Another problem with bookmarks is that they become stale, and in some cases expire, over time. For instance, an internet document may change between the time that a user generates a bookmark, and then revisits the associated web page at a later time. In some cases, a URL, may expire altogether. For example, the document associated with the URL may be removed from the server such that the URL returns an error message indicating the document no longer exists.

Another problem with bookmarks is they are a less than ideal mechanism for sharing information. For example, to share information with a bookmark facilitated by a web browser application, a user must generally email the bookmark to another user. When the recipient receives the email including the bookmark, the user must select the link—if the bookmark is implemented as a user-selectable link—in order to initiate loading of the associated document in the user's web browser application. Often the bookmark is not a user-selectable link. In this case, the user must copy-and-paste, or type, the corresponding URL of the bookmark into the address bar of the web browser application. The copy-and-paste method sometimes does not work because of special characters, such as carriage return and line feed characters, in the URL. In any case, the additional steps required to access the relevant document are often viewed as burdensome. Often it is only a subset of individuals who end up going through the process necessary to load the relevant document. When the relevant document is finally loaded into and displayed by the recipient's web browser, the recipient of the bookmark may not appreciate the relevance of the associated document.

Realizing that many email recipients will not follow embedded links, some senders have devised a strategy wherein they copy-paste the relevant portions of an internet document into the body of an email. However, this simply shifts the copy-paste workload from the recipient to the sender. Furthermore, on the receiving end, the context is lost and credibility is in doubt as to the authenticity of the pasted material with respect to the original content. Thus, improved tools for information retrieval and collaboration are needed.

SUMMARY

A method, apparatus, and system for enabling a user to selectively make one or more highlights in a currently displayed document on a mobile, handheld, eBook reader, or similar device are disclosed. The user-generated highlights

are persistent over user-initiated cursor control activities as well as persistent over reading sessions. Furthermore, the highlighting functionality can be invoked without downloading and installing any custom software components, and without explicitly generating a user account.

Other aspects of the invention are described below in connection with the description of the figures.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate an implementation of the invention and, together with the description, serve to explain the advantages and principles of the invention. In the drawings,

FIG. **1** illustrates an example of a computer network environment including a highlighting or highlighter server, according to an embodiment of the invention;

FIGS. **2** and **3** illustrate data flow diagrams showing an example of the data flow between an end-user's computing device, a highlighter server, and a content provider according to an embodiment of the invention;

FIG. **4** illustrates a logical block diagram showing an example of the logical components of a highlighter server according to an embodiment of the invention;

FIG. **5** illustrates an example of a registration procedure by which an unregistered user converts to a registered user, according to an embodiment of the invention;

FIG. **6** illustrates an example of a user interface object, referred to herein as a highlighter panel, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention;

FIG. **7** illustrates an example of a user interface object, referred to herein as a highlighter toolbar, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention;

FIG. **8** illustrates an example of a user interface object, referred to herein as a collaboration panel, which enables a user to share an internet document containing user-generated highlights with another user, according to an embodiment of the invention;

FIG. **9** illustrates an example of an email with user-generated highlights, according to an embodiment of the invention;

FIGS. **10** through **12** illustrate various user interface features of a highlighter web portal, according to an embodiment of the invention;

FIG. **13** illustrates an example of a web page providing a snippet of code for adding a highlighter roll to a web page, according to an embodiment of the invention; and

FIG. **14** illustrates an example of a web page with a user interface object referred to herein as a highlight roll, according to an embodiment of the invention.

DETAILED DESCRIPTION

Reference will now be made in detail to an implementation consistent with the present invention as illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings and the following description to refer to the same or like parts. Although discussed with reference to these illustrations, the present invention is not limited to the implementations illustrated therein. Hence, the reader should regard these illustrations merely as examples of embodiments of the present invention, the full scope of which is measured only in terms of the claims following this description. In particular, many of the various aspects and features of the invention are most easily understood by those skilled in the art when conveyed as user interface features. However, those skilled in the art will appreciate that the user interface elements illustrated and described are examples, and the invention is not to be limited by those user interface features specifically illustrated in the drawings.

Consistent with one embodiment of the invention, a highlighting service is provided by a highlighting server, which enables a user to manipulate the user interface of a web browser application executing at the user's client device to selectively highlight the text of an internet document received from a content provider's server. In so doing, any portions of text highlighted by the user are captured by the highlighter server. For example, the portion of text highlighted by the user is communicated to the highlighter server, where it is stored. Accordingly, the highlighter server enables a user to easily retrieve the highlighted text at a later time. In addition, the highlighter server enables a user to annotate and share the highlighted text, along with the internet document, with other users.

The highlighter server enables a user to selectively highlight text via a conventional web browser interface, for example, by controlling a customizable cursor with a pointing device (e.g., a mouse, trackball, joystick). The manner in which the user manipulates the user interface to selectively highlight text is similar to the way in which a user would highlight text in any number of conventional text editing applications. For example, the user may simply press and hold a button of a pointing device while manipulating a cursor with the pointing device to select a particular portion of text. However, in accordance with an embodiment of the invention and in contrast to conventional text editing applications, the highlighter server enables a user to highlight the text and graphics of internet documents served from a content provider server with the conventional controls and features of a web browsing application, without installing any special software. Moreover, any highlights made by the user are communicated in near-real-time to the highlighter server without any need for any additional user interaction. Consequently, any highlights the user makes are automatically saved at the highlighter server and can easily be viewed during a subsequent web browsing session. In an alternative embodiment of the invention, the highlights could be saved on a local device.

In addition to enabling a user to easily retrieve highlighted portions of internet documents, the highlighter server facilitates various methods of sharing highlighted portions of text with other users. For instance, in one embodiment, after a first user has made a highlight to a particular internet document, a subsequent user viewing the same document with the highlighting service invoked will optionally be able to see the first user's highlight(s). Similarly, if multiple users previously made highlights to a particular document, a subsequent user will be able to see all user's highlights. To avoid becoming overwhelmed with highlights, a user, and/or the system, can configure the settings of the highlighting service such that only highlights made by user-selected persons (including oneself), or those persons who are a member of a user-selected and/or system-selected group, are displayed. In yet another aspect, a user may generate and send an email to another user such that the email includes the highlighted portions of text and/or the entire document as highlighted.

It will be appreciated by those skilled in the art that various architectures may be used to implement a highlighting service consistent with the invention described herein. Furthermore, although many functions described herein are attributed to either a client or a server, those skilled in the art will appreciate that in alternative embodiments of the invention, a function attributed herein to a server, may in fact be implemented on, or provided by a client device. Similarly, a function described herein as being provided by a client, may be provided by a server in an alternative embodiment of the invention. Other aspects of the invention will become apparent from the descriptions of the drawings that follow.

Although the present invention is described herein primarily in the context of a highlighting service, those skilled in the art will recognize a wide variety of other applications that are consistent with the general spirit of the invention. For instance, consistent with another embodiment of the invention, a client web browser directs a request for a document (either directly, or indirectly) to a content provider hosting the document. The request may be directed to an intermediate server or intercepted by an intermediate server, which in turn, forwards the document request on to the content provider server. The content provider server sends the requested internet document to the intermediate server where it is modified in some manner "on the fly". That is, the requested internet document is modified by the intermediate server in near real time, before it is forwarded on to the requesting client web browser. Accordingly, the requesting client web browser receives a modified copy of the requested document, without making any actual modification to the document stored on the content provider server. In an alternative embodiment of the invention, the requested document is communicated from the intermediate server to the client web browser in its original unmodified form, along with a code module. At the client web browser, the code module is executed or interpreted, causing the client to modify the original document in some manner.

The modification to the document made by the intermediate server in near real time (or the client) may include overlaying an object on the document, changing a portion of the document, altering the references in a document, adding an additional element or component to the internet document, or alternatively, removing or deleting a portion or element of the originally requested document. For example, in one embodiment of the invention, a portion of the document may be highlighted. In another embodiment of the invention, an advertisement may be added or deleted from the originally requested document. In yet another embodiment of the invention, a textual portion of the document may be italicized, underlined, made bold, or have its color changed. In any case, the document is being modified by the intermediate server.

System Architecture

FIG. **1** illustrates an example of a computer network environment including a highlighter server **10**, according to an embodiment of the invention. As illustrated in FIG. **1**, the highlighter server **10** is communicatively coupled by means of a network **12** to several content provider servers (e.g., **14**-*a* and **14**-*b*). In addition, the highlighter server **10** is communicatively coupled by means of a network **12** to a user's client computer **16**. It will be appreciated by those skilled in the art that the computing environment illustrated in FIG. **1** is but one example, and a wide variety of computer and network configurations might be used without departing from the spirit of the invention. For instance, the user computer, although depicted in FIG. **1** as a desktop computer, may be any of a wide variety of computing devices, including but not limited to: desktop computer, laptop computer, personal digital assistant, or mobile handset. Furthermore, although in the examples provided herein the highlighter server **10** is shown as a separate component, in one embodiment of the invention the highlighting service executing on the highlighter server **10** may reside and execute on a content provider server (e.g., **14**-*a*, or **14**-*b*), or a server under the control of a content provider.

In general, the user utilizes a web browser application on client computer **16** to access and display content in the form of internet documents or web pages, which are stored in whole or in part on various content providers (e.g., **14**-*a* and **14**-*b*). In one embodiment of the invention, a user invokes the highlighter service by prepending the address or uniform resource locator (URL) of the highlighter server **10** prior to the URL of an internet document that the user is requesting. In one embodiment of the invention, a bookmarklet, which is a button with associated code that typically resides on a web browser toolbar, automatically prepends the address of the highlighting server to the address of a document, thereby invoking the highlighting service.

Consistent with an embodiment of the invention, once a highlighter session has been invoked, a user has at his or her disposal a variety of tools for highlighting text and objects of an internet document. For instance, in one embodiment of the invention, a highlighter tool panel will appear in the web browser window and provide the user with a selection of controls enabling various features and functions of the highlighting service. In another embodiment of the invention, various controls may be provided by a highlighter toolbar. In any case, the basic function of the highlighting service is to enable a user to highlight an object (e.g., text, graphical images, etc.) of an internet document, such that the highlighted portion(s) can easily be recalled at a later time and/or shared with other users. Accordingly, as the user highlights an object, the highlighted object is communicated to the highlighter server **10** where it is stored. In one embodiment of the invention, the highlighted object (e.g., a selection of text) is stored along with any annotations or comments the user may have added, as well as a date and time indicating when the highlight was generated. The highlighted object and its associated data are stored in such a manner as to be associated with the user who generated the highlight. This allows the user to recall and view highlights from previous highlighting sessions. Furthermore, as each highlight is associated with a source (e.g., a person responsible for generating the highlight), users can configure the highlighting service to display highlights on a per user basis. That is, a user may configure the settings of the highlighting service to display only the highlights of a particular user, or group of users. For instance, as described in greater detail below, users may create and subscribe to groups. Accordingly, a user may configure the highlighting service to display highlights on a per group basis, such that only highlights from those members of a particular group are displayed. Similarly, an embodiment of the invention may enable a user to build out a social network, for example, by specifying who the user considers to be direct contacts. Accordingly, the user may configure the highlighting service to display highlights of all users within the user's social network, up to a certain degree of separation (e.g., a friend of a friend).

The highlighting service enables the user to generate highlights with conventional web browser controls. For example, in one embodiment of the invention, the user generates a highlight by simply pressing a button of a cursor control device (e.g., mouse) and dragging the cursor across

an object before letting up on the button. The highlights generated by a user, according to an embodiment of the invention, are persistent over user-initiated cursor activity as well as web browsing sessions. That is, after making a highlight, each user-generated highlight remains even after the user clicks on a different portion of the internet document. Similarly, a user can navigate away from an internet document or web page on which the user has made a highlight, and the next time the user revisits the web page, the highlight will be visible so long as the user has invoked a highlighting session via the highlighting service.

In one embodiment of the invention, the highlighting service is enabled without requiring the user to download and install a client-side software application. That is, the highlighting service is enabled via the standard functions of the web browser application on the client side. For instance, in one embodiment of the invention, asynchronous JavaScript and extensible markup language (XML), referred to as Ajax, are used to provide an interactive user experience via a conventional web browser application, without the need for downloading and installing any customized software. Alternatively, the highlighting service may be enabled by a browser plug-in or browser extension. For instance, a user may download and install a software application that when executed, works in conjunction with a web browser application to enhance the functionality of the web browser application—in this case, enabling the highlighting service. In yet another embodiment, the highlighting service may be enabled by a stand alone software application. That is, the client side functionality of the highlighting service may be attributed to a daemon, or some other stand alone software application.

FIGS. **2** and **3** illustrate a data flow diagram showing an example of the data flow between an end-user's computing device, a highlighter server, and a content provider according to an embodiment of the invention. As illustrated in FIG. **2**, a highlighting session is invoked when, at step **1**, a user directs an initial request via the user's web browser application to the highlighting service hosted by the highlighter server **10**. The initial request, although directed to the highlighter server **10**, includes the address of a desired internet document. For instance, the address of the highlighter server **10** may be prepended to the beginning of the address of the requested document such that the request is sent to the highlighter server **10**, but includes the address of the desired document hosted at the content provider **14**-*a*. For instance, such a request may be of the form: "http://roohit.com/http://www.news.com/article123.htm".

Once the highlighter server **10** receives the initial request, the highlighter server **10** analyzes the initial request and extracts the address of the requested document. For example, the address extraction logic **22** (shown in FIG. **4**) extracts the address of the requested internet document (e.g., "www.news.com/article123.htm") from the request received by the highlighter server **10** (e.g., "http://roohit.corti/http://www.news.com/article123.htm"). Accordingly, at step **2**, the forwarding logic **22** (shown in FIG. **4**) of the highlighter server **10** forwards the document request to the content provider that is hosting the requested document. At step **3**, the content provider responds by communicating the original requested document to the highlighter server **10**.

Once the highlighter server **10** receives the original document from the content provider, the highlighter server **10** analyzes the original document and modifies various object references within the original document. For instance, in one embodiment of the invention, the highlighter server **10** includes reference modification logic **24** for modifying various references by prepending the highlighter server address to the existing addresses in the reference. Consequently, when an object is requested, the web browser application will direct a request to the highlighter server **10** for those objects with modified references. Finally, at step **4**, the modified document is communicated from the highlighter server **10** to the client computer **16**.

As illustrated in FIG. **3**, when the client computer **16** receives the modified document, it attempts to request the various objects that are referenced in the document. Accordingly, at step **5**, for those objects stored directly at the content provider, the client computer **16** sends object requests to the content provider **14**-*a*. Requests sent directly to the content provider **14**-*a* are serviced by the content provider **14**-*a*, and at step **6** one or more objects are returned to the client computer **16**. For those objects which have had their reference previously modified (e.g., by prepending the address of the highlighter server), the client computer directs one or more object requests to the highlighting service (e.g., at step **7**). In turn, at step **8**, the highlighting server **10** communicates a request for the object to the content provider **14**-*a*. The content provider communicates the object to the highlighting server at step **9**, and finally, at step **10** the object is communicated to the client computer **16** which displays the internet document in a web browser window.

Referring again to FIG. **2**, if a user requests a document that has previously been highlighted (e.g., by the requesting user, or another user), the highlighter server **10** will modify the original document by inserting the necessary object reference to ensure that the highlight(s) are displayed when the document is rendered by the user's web browser application. For instance, the reference modification logic **24** of the highlighter server **10** will modify the object reference in the original document, such that the modified object reference will cause the particular object (e.g., selection of text) to be highlighted when displayed by the web browser application. In another embodiment of the invention, a portion of executable or interpretable code sent from the highlighter server **10** to the client enables the client to query the highlighter server **10**. Accordingly, the query is processed by the highlighting service, and if a particular document has been previously highlighted, the necessary data is sent to the client's web browser application to show the highlights. In one embodiment of the invention, the query indicates the URL of the currently displayed document. The highlighting service determines whether the URL is associated with any previously generated user highlights. If so, the highlighting service determines if the current user (e.g., the user viewing the document) has configured the highlight filtering mechanisms to display any of the previously generated user highlights. If the user has optionally selected to view highlights from one or more users who have previously generated a highlight on the currently displayed page, then the highlighting service will communicate the appropriate information to the client so that the highlight will be displayed.

FIG. **4** illustrates a logical block diagram showing an example of the logical components of a highlighter server **10** according to an embodiment of the invention. As illustrated in FIG. **4**, the highlighter server **10** includes network and communications logic **20** for communicating data with various other computing devices, including client computers and content provider servers. In one embodiment of the invention, the network and communication logic **20** implements the necessary network and communication protocols, such as transfer control protocol and the internet protocol (TCP/IP) for sending and receiving data over a network,

such as the public Internet. A variety of other well known communication and networking protocols may be used in accordance with an embodiment of the invention.

In one embodiment of the invention, the highlighter server **10** includes address extraction and forwarding logic **22** as well as reference modification logic **24**. As described above, when the highlighter server **10** receives a request for a document hosted by another content provider, the address extraction and forwarding logic **22** extracts the document address of the requested document from the initial request received at the highlighter server **10**, and then forwards the extracted document address to the proper content provider **14**. Similarly, the reference modification logic **24** modifies object references in original documents received from content provider servers prior to sending the object references in the modified document to the client computer. Object references are modified, for example, to ensure that certain object requests are directed to the highlighter server, and other requests are directed directly to the content provider.

In one embodiment of the invention, the highlighter server **10** includes page caching logic **31**. Accordingly, when a client requests a document hosted at a content provider, the highlighter server **10** may check its cache to determine if the highlighter server **10** has a current copy of the document stored locally. If so, the highlighter server **10** does not need to forward the request to the content provider, but instead, the highlighter server **10** can retrieve and serve the document from its cache.

In one embodiment of the invention, the highlighter server **10** includes user account registration logic **26**. As described in greater detail below, in one embodiment of the invention, a user can access and use the highlighting service in one of two modes—as a registered user, or as an unregistered user. As an unregistered user, the user is not prompted to enter or provide any personal information or set-up a username and/or password. The highlighting service allows unregistered users to save and share highlights. However, if an unregistered user would like to become a registered user, the user account registration logic **26** facilitates the generation of a user account while preserving all previously generated highlights. That is, the highlight service will merge an unregistered user's data into a registered account, thereby preserving any configuration settings and highlights the user made as an unregistered user.

In one embodiment of the invention, the highlighter server **10** includes page saving logic **28** and unique URL generating logic **30**. In certain situations, a user may desire to save a copy of an internet document. For instance, many internet documents—such as web pages on news sites, and blogs—are dynamic and constantly changing. Accordingly, a user may want to highlight a portion of an internet document and then save a copy of the entire page, for example, to share with another user or group of users. The page saving logic **28** enables a user to save a copy of an entire page. The unique URL generating logic **30** generates a unique URL to associate with the saved page. Therefore, to share an internet document that has been saved by the highlighting service, a user can share the unique URL generated by the unique URL generating logic **30** and associated with the saved page.

When a highlight is made on a page that tends to be dynamic (e.g., changes frequently)—for example, such as a blog site, or a news site—highlight insertion logic **29** analyzes the content of the page to determine if, and where, a previously made highlight is to be inserted. For example, as new blog entries are posted to a blog site, thereby forcing old entries to appear positioned lower on the web page, the highlight insertion logic **29** intelligently analyzes the web page to determine where to position a previously made highlight.

In one embodiment of the invention, users can display and view highlights on a per user and/or a per group basis. Accordingly, the highlighting server **10** includes user and group subscription logic **32** to manage the creation of, and subscription to, user- as well as system-defined groups. For instance, a web-based interface to the highlighting service may provide a user with an option to create a group, and invite others to join the group. Similarly, a user may search for and join previously created groups. The group subscription logic **32** facilitates and manages such tasks. Once a member has subscribed to a particular group, the member can configure the highlighting service to display highlights from all members of the group. In one embodiment, a user may subscribe to receive emails embedded with new highlights from users in a particular group. Accordingly, the user may subscribe to receive emails on a real-time basis showing all new highlights as they are made by users. Alternatively, a user may subscribe to receive a daily, weekly, or some other time period, email summary showing relevant highlights for that time period.

In one embodiment of the invention, the highlighting server **10** includes a web server module **34**. The web server module **34** not only serves documents that have been forwarded from other content providers, but the web server module **20** also provides an administrative interface to administrators of the highlighter server **10**, and a user interface to various features provided by the highlighter server **10**. For example, in one embodiment of the invention the web server component **34**, in conjunction with the administrative interface logic **38** facilitates web-based administration and configuration of the highlighter server **10**. Similarly, the web server component **34**, in conjunction with the user interface logic **36**, facilitates web-based configuration and setup of various features of the highlighting services provided by the highlighter server **10**. A storage device stores internet documents **44** associated with the user interface logic **36** and administrative interface logic **38** provided by the web server module **34**

In one embodiment of the invention, the highlighter server **10** includes database management logic **40** for managing a data repository. Accordingly, as the highlighter server **10** receives portions of text and images from internet documents as such portions are highlighted by users, the database management logic **40** stores the highlights in a database **42**. Similarly, the database management logic **40** recalls the highlights from the database **42**, and provides the associated data to the web server module **34** so that the document can be manipulated (either at the server or at the client) in a manner that will display highlights when the document is rendered by a client's web browser.

In one embodiment of the invention, the highlighter server **10** includes an email server **39**. Accordingly, the email server **39** facilitates the generation and sending of emails by users. For example, via one or more user interface objects, a user may be prompted to enter or select an email address in order to send a copy of a currently displayed internet document—including any user-generated highlights—to another user. The email server not only facilitates the sending of the email, but also the generation of the email and the formatting of any highlighted objects. Accordingly, an email recipient will receive an email with an embedded internet document showing any user generated highlights

made by the user. The recipient need not download any special software in order to view the sent internet document and associated highlights.

Another component of the highlighter server **10** is a search server **41**. In one embodiment of the invention, the highlighter server **10** provides a search interface where users can search for relevant internet documents and highlights. For example, a user may perform a keyword search, where the keyword is searched for in a portion of an internet document that has been previously highlighted by a user, or within an annotation or comments section associated with a particular highlight. The search server **41** may facilitate searches by user or by group, such that a user can enter the name or email address of a particular user as a search parameter. Furthermore, a user may search for content based on tags—a user-assigned, relevant keyword or term associated with or assigned to a piece of information, like a picture, article, or video clip, thus describing the item. Other aspects of the various search features are described in greater detail in related, co-pending U.S. patent application Ser. No. 11/766,669, entitled, "Method and System for Determining the Significance and Relevance of an Internet Document, or a Portion Thereof", filed on Jun. 21, 2007, which is hereby incorporated herein by reference.

One embodiment of the highlighter server **10** includes an application programming interface (API) module **37**. In various configurations of the highlighting server, the API module provides a common interface for communicating messages with third-party add-ons, as well as software agents. For example, in one embodiment of the invention, a third-party search engine may communicate API messages to the highlighter server, requesting information about various documents. Accordingly, the search engine may utilize an API to communicate those messages with the highlighter server **10**. Similarly, third-party tools and applications that utilize highlights, and the wide variety of information and data associated with highlights, may make requests of the highlighting server **10** via the API module **37**.

Those skilled in the art will appreciate that various alternative components and logic may be included in a particular implementation of the highlighter server **10**, without departing from the spirit of the invention.

User Registration

FIG. **5** illustrates an example of a registration procedure by which an unregistered user **50** converts to a registered user **52**, according to an embodiment of the invention. Advantageously, users need not download and install any customized software on a client computer in order to establish a highlighting session via the highlighter server **10**. For instance, in one embodiment of the invention, asynchronous JavaScript and extensible markup language (XML), referred to as Ajax, are used to provide an interactive user experience via a conventional web browser application, without the need for downloading and permanently installing any customized software. Moreover, in one embodiment of the invention, a user need not register with the service, or establish a user account, in order to use the highlighting service. When a user has not registered with the service, a unique identifier **52** is sent from the highlighter server **10** to the client **16** executing the web browser application. The unique identifier, for example, may be an HTTP cookie that uniquely identifies the user. Accordingly, when a user selects a portion of an internet document with a highlighter cursor during a highlighting session, that portion of the document highlighted by the user is communicated to the highlighter server, associated with the unique identifier, and then stored at the highlighter server **10** (e.g., as user data **54** in FIG. **5**). If, during a subsequent browsing session, a request is made for the same document, and the request includes the user's unique identifier, the highlighter server **10** will associate the highlighted portion of text with the unique identifier and manipulate the requested document to cause the highlight(s) to appear when the document is displayed in the user's web browser window. If a user decides to register with the highlighting service, the unique identifier (e.g. the HTTP cookie) is associated with a new human readable identifier, such as a user-selected username and password, and all previously generated highlights will be preserved and transferred to the user's registered account, as illustrated by user data **56** in FIG. **5**

User Interface (Highlighter Panel/Toolbar/Collaboration Panel)

FIG. **6** illustrates an example of a user interface object, referred to herein as a highlighter tool panel **60**, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention. According to one embodiment of the invention, the highlighter tool panel **60** appears as a separate window within the browser display window, and may have a variety of display modes. For instance, as illustrated in FIG. **6**, the highlighter tool panel **60** is in maximized display mode and all controls are visible. In addition to a maximized mode, the highlighter tool panel **60** may also have a minimized mode. In the minimized mode, a subset of the controls may be accessible. As with conventional graphical user interface windows, a set of buttons **62** at the top of the window provide a mechanism for switching between maximized and minimized modes, and closing the tool panel window. In one embodiment of the invention, the highlighter panel may even have an invisible mode.

In one embodiment of the invention, the tool panel **60** includes an address bar **64** which provides a separate mechanism for navigating the World Wide Web and displaying internet documents hosted by different content providers. For instance, by typing an address in the text entry box of the address bar **64** displayed in the highlighter tool panel **60** and selecting the "GO" button, a user can download and display an internet document associated with the address entered. Note that the address entered in the text entry box need not include a reference to the highlighting service. The entered address will automatically be manipulated to invoke the highlighting service. If, for instance, an additional address needs to be prepended to the address entered by the user in order to invoke the highlighting service with the requested internet document, the tool panel **60** will automatically manipulate the address accordingly.

In addition to an address bar **64**, in one embodiment of the invention the highlighter tool panel **60** includes an email address bar **66** where a user can enter an email address and share the currently displayed document, including any user-generated highlights in the document, with another user. For example, the email address bar **66** enables a user to enter one or more email addresses, and then select the "SEND" button to instantly send an email of the currently displayed internet document. If the currently displayed document includes user-generated highlights (e.g., highlighted text **80** and **82**) those highlights will be displayed with the document in the email. Advantageously, the internet document (including any highlights) is embedded within an email such that the user need not install any special software in order to view the document and any included highlights.

In one embodiment of the invention, the highlighter tool panel **60** includes a text entry box for adding a user to a list of users whose highlights can be selectively toggled on or

off. For instance, by inputting an email address (e.g., Jane_doe@yahoo.com) or username of another user in a text box, and pressing the add button **67**, the user can be added to a list of users and groups **76** whose highlights can be selectively shown or hidden. Adding a user in this manner may also add the user to one or more drop down menus, selection boxes, or scroll windows (e.g., scroll window **98** in FIG. **8**) used for quickly addressing emails.

A variety of other controls may be included with the highlighter tool panel **60** according to an embodiment of the invention. For example, in one embodiment of the invention, the tool panel **60** includes a button (e.g., the "PUT PEN DOWN" button **68**) that toggles the cursor between a standard cursor, and a highlighter pen cursor. When the active cursor is in highlighter pen mode, for example, the highlighting tool is active. This enables a user to select text or an object using a click and drag method, by which a user simply selects an object to highlight by dragging across an object while depressing a cursor control (e.g., mouse) button. When the active cursor is not in highlighting mode, a user may select an object (e.g., a portion of text or an image) and then press a button (not shown) to generate a highlight of the selected text. In one embodiment of the invention, the tool panel **60** includes a button or link (e.g., the "PAST HiLites" button **70** in FIG. **6**) that causes the web browser application to display a web page containing a list of past highlights made by the user. The list of past highlights may include a summary or excerpt from the previous highlights as well as a link to the full document from which the highlights are from. In addition, the past highlights web page may show additional information about each highlight, including but not limited to: the time and date the highlight was generated, the number of people that have viewed or selected the highlight, the address of persons with whom the user has shared the highlight, the number of other users who have highlighted the object, and/or annotations made by the user.

In one embodiment of the invention, a color palette **72** is included with the tool panel **60**. By selecting a color from the color palette, the user can manipulate the color of the active highlighter cursor, and ultimately the color of any highlights the user makes. This provides each user with the ability to create customized highlight color coding schemes. Accordingly, a user may mark-up different sections of an internet document with different colors, such that each different color indicates additional information about the highlighted text. For instance, green highlighted text may support a particular proposition or indicate a positive treatment of a particular subject, while red highlighted text may indicate a negative treatment of the same subject. Those skilled in the art will appreciate the wide variety of user-customized color coding schemes that might be implemented according to an embodiment of the invention.

In one embodiment of the invention, the highlighter tool panel **60** includes a user/group filtering mechanism **74** which enables a user to select whose highlights should be displayed in a particular internet document on a per user or per group basis. For instance, referring again to FIG. **6**, by selecting the "SHOW GROUP 1 HiLites" box in the tool panel **60**, all highlights made by members of "GROUP 1" will be displayed to the user in the currently displayed internet document. Similarly, by selecting the "SHOW JANE DOE's HiLites" box, the user can control the display of highlights such that Jane Doe's highlights are also shown in the presently displayed document. Furthermore, in one embodiment of the invention, the filtering mechanism can be configured on a per document and/or per domain basis, such that a user can specify whose highlights the user would like to see when viewing particular documents, or documents from particular domains.

In one embodiment of the invention, the highlighter tool panel **60** includes a configuration setting that enables the user to display highlights that represent the consolidation of all user-generated highlights on a page. For example, when the check box illustrated in FIG. **6** next to the option "SHOW CONSOLIDATED COLOR INTENSITY SPECTRUM" with reference **77** is checked, the highlighting service will analyze all of the user-generated highlights associated with a particular internet document or web page. Rather than show individual highlights, the highlighting service causes portions of the internet document to be highlighted in particular colors that represent the frequency with which that portion of the document has been highlighted. For example, when the check box **77** is selected, a portion of the document that has been highlighted by many users may be shown in red. Accordingly, under this scenario, a red highlight on a particular object indicates that the particular object has been highlighted by many users. A less frequently highlighted portion of the document may be highlighted in another color. In another embodiment, the particular shade of the color may indicated the frequency with which the portion of the document has been highlighted. In one embodiment of the invention, enabling the color intensity spectrum view of highlights automatically disables the user/group view of highlights. That is, when viewing highlights in the color intensity spectrum mode, user level highlights and/or group level highlights may not be shown.

Many of the configuration settings illustrated in FIG. **6** may also be accessed and adjusted via a highlighter web portal. For example, the highlighting service provides a web-based user interface where users can set certain configuration parameters to default settings. Accordingly, when a user invokes the highlighting service without the highlighter tool panel, any configuration settings previously established via the highlighter web portal will be active by default.

FIG. **7** illustrates an example of a user interface object, referred to herein as a highlighter toolbar **78**, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention. Similar to the highlighter tool panel **60** illustrated in FIG. **6**, the highlighter toolbar **78** is a user interface object that provides a variety of controls and features associated with the highlighting service. In one embodiment of the invention, the highlighter toolbar includes the control objects described above in connection with the highlighter tool panel **60**, including but not limited to: an address bar for navigating, an email address bar for sharing the currently displayed document with any user-generated highlights, a button to toggle the active highlighter cursor on and off, a button to access previously generated highlights, a button to access previously saved pages, a color palette to change the color of highlights, and a mechanism for selecting and filtering the highlights that are displayed on an internet document on a per user or per group basis. In addition, in one embodiment of the invention, the toolbar may include third-party tools. For example, the toolbar may provide one or more control objects enabling the user to quickly and easily gain access to a third-party tool, service, or application.

FIG. **8** illustrates an example of a user interface object, referred to herein as a collaboration panel **90**, which enables a user to share an internet document containing user-generated highlights with another user, according to an embodi-

ment of the invention. As illustrated in FIG. **8**, in one embodiment of the invention the collaboration panel **90** is a mouseover window or box that appears when a user moves the highlighter cursor **92** over a particular highlight **80** in the currently displayed internet document. The collaboration panel **90** includes a text entry box **94** where a user can provide a comment about the particular highlighted object. In addition, the collaboration panel **90** includes an email address bar **96** where the user can enter one or more email addresses. Also, the collaboration panel includes a scroll window **98** with a list of other users and groups with whom the user may be associated. By checking a box, or otherwise selecting another user or group, the user can quickly address an email to the user or group. After selecting and/or entering the names of those persons/groups to receive an email, the user simply selects the "SEND" button **100** to send a copy of the currently displayed internet document, including any highlighted objects (e.g., highlights **80** and **82**), embedded within an email. In one embodiment of the invention, the email server **39** of the highlighter server **10** will generate and send the email to the selected recipients. Accordingly, the recipient of such an email will be able to view the entire internet document including any highlights without downloading any additional software and/or requesting any additional internet documents. In an alternative embodiment of the invention, a link to a highlighted document may be provided in the email.

In one embodiment of the invention, the collaboration panel also provides a view of any comments that a user may have entered about a particular highlight. For instance, if a user sends a comment to another user, the other user may view the comment by simply putting the highlighter cursor over the highlight. If more than one comment is associated with a particular highlight, the comments will be displayed in order such that a user can follow along with a virtual conversation based on an exchange of comments. Just as a user may filter the highlights that are displayed, in one embodiment of the invention, comments may optionally be filtered so that a user only sees comments from particular users, or groups, of interest.

FIG. **9** illustrates an example of an email with user-generated highlights, according to an embodiment of the invention. As illustrated in FIG. **9**, an email generated and sent via the collaboration panel includes a header portion **106** where the comment **108** that was entered in the text box **94** of the collaboration panel **90** is displayed. This provides the recipient of the email with additional information and context as to what is relevant about the document as a whole, and the highlight **80** in particular.

In one embodiment of the invention, the header portion **106** of the email also includes an address bar **110**, where a user can enter the address or URL of a web site or document, and begin a highlighting session. For instance, by entering a URL in the address bar **110** of the email, and then pressing the "START HiLiting" button **112**, a web browser window will open and the requested document will be displayed along with a highlighter tool panel **90**.

Highlighter Web Portal

FIG. **10** illustrates a top level page (e.g. a home page) for a highlighter web portal, according to an embodiment of the invention. As illustrated in FIG. **10**, in one embodiment of the invention, the home page of a highlighter web portal includes a text entry box **114** where a user can enter a URL or document address to begin a highlighting session. For example, by simply typing in the address of an internet document in the text entry box **114** and then pressing the "START HiLiting" button, a user invokes a highlighting session with the document corresponding with the address entered.

FIG. **11** illustrates a contact management page of a highlighter service, according to an embodiment of the invention. As illustrated in FIG. **11**, in one embodiment of the invention, the highlighting service includes a contacts list where a user can enter and maintain personal and/or business contact information. In one embodiment, as a user shares highlights via email, the email addresses of the recipients will automatically be saved into the user's contact list. In addition, as users are added as contacts, the email addresses of those users will automatically populate certain user interface objects, such as the scroll window **98** in FIG. **8**.

In one embodiment of the invention, the contact management interface may also provide a mechanism for users to build out or define a social network. For example, a user may specify which contacts to include in his or her social network. Accordingly, several of the features described herein may be configured on the basis of one's social network. For example, a user may select to see all highlights from any member within his social network.

FIG. **12** illustrates a HiLites summary page, according to an embodiment of the invention. In one embodiment of the invention, a highlighter web portal provides the user with easy access to a list of all previously generated highlights of a particular user (including oneself). In addition to showing a thumbnail **115** of the document which the highlights are from, the list also includes a variety of icons enabling the user to take several actions in connection with a selected highlight, or a comment associated with a highlight. For instance, a user may rank or rate a highlight, a comment, and/or an internet document containing a highlight or comment. In one embodiment, a user may select a link to see more highlights or comments from a particular user. In addition, the user may select a button or link enabling the user to subscribe to a particular user's highlighting activities. Accordingly, as the particular user makes new highlights, a copy of such highlights and/or the internet document containing the highlights may be sent to the user in real-time, or on a predetermined or user-configured periodic schedule.

FIG. **13** illustrates an example of a web page providing a snippet of code **120** for adding a user interface object, referred to herein as a highlighter roll, to a third-party web page, according to an embodiment of the invention. The snippet of code shown in FIG. **13** can easily be added to another web page by copying and pasting the code. The highlighter roll, once embedded in another web page, will display highlights of a particular user. The code snippet **120** is generated automatically in response to user-specified parameters **122** that are provided at one or more user interface input mechanisms (e.g., drop down lists, text entry boxes, and so on). Accordingly, the highlighter roll can be configured to show a particular number of previous highlights, scroll highlights up or down, scroll at variable speeds, and display the highlights in various user-selected formats. In one embodiment of the invention, the highlighter roll may query the highlighting service to receive a predetermined number of the most recent highlights by a user, by a group, or by everyone, or based on a particular topic, or by a grouping of particular websites or URLs. By inputting various configuration parameters, a user can display a preview of what the highlighter roll will look like when embedded in a third-party web page.

FIG. **14** illustrates an example of a web page with a user interface object referred to herein as a highlight roll **126**, according to an embodiment of the invention. As described in connection with FIG. **13**, the code for displaying a highlight roll **126** may be automatically generated by a highlighting service web portal, such that a blogger or another web author can easily copy and paste the code into his or her own web page, thereby adding the highlight roll **126** to his or her web page and enabling the display of user-generated highlights. As illustrated in FIG. **14**, the highlight roll has a title, "JANE DOE'S HIGHLIGHTS:" as well as a text box **126** where highlights are displayed. The title is easily configurable by providing a configuration parameter as described in connection with FIG. **13**. In various embodiments of the invention, multiple highlights may scroll up or down in the text box. In one embodiment of the invention, the highlights will automatically and dynamically update as a user continues to highlight new objects on new internet documents. Accordingly, a highlight roll **126** provides an excellent means of displaying a user's recent web activity, to the extent that a user's highlighting activity represents his or her web activity. A highlight roll may be particularly useful on blogging websites, but also on news websites, corporate websites, social networking websites, and others.

In one embodiment of the invention, a query is used to select the particular highlights from a highlighting service that are to be displayed in a highlight roll. Accordingly, the selection parameters for the query may be configured by a user, such that a wide variety of highlight characteristics can be used to select the particular highlights to be displayed in a highlight roll. In one embodiment of the invention, a highlight roll may be configured to display highlights from a particular user, or group of users. In another embodiment, the highlight roll may be configured to randomly query the highlighting service for user-generated highlights. In yet another embodiment, the highlight roll may be configured to query the highlighting service for highlights that were made on a particular internet document, website, or group of websites. In another embodiment of the invention, the highlight roll may be configured to query the highlighting service for highlights that contain a particular key word or words. In yet another embodiment, the highlight roll may be configured to query the highlighting service for highlights of images.

In one embodiment of the invention, a highlight roll may be used on a blog website. For example, a blogger may use a highlight roll to enhance the content on his or her blog site. Alternatively, the highlight roll may take the place of a blog altogether. For example, by displaying a highlight roll in place of a blog, a user may author blog entries by simply highlighting portions of other internet documents, and then providing comments about the highlighted portions of the document. Those skilled in the art will appreciate that a highlight roll may be used in other contexts not specifically addressed herein.

The foregoing description of various implementations of the invention has been presented for purposes of illustration and description. It is not exhaustive and does not limit the invention to the precise form or forms disclosed. Furthermore, it will be appreciated by those skilled in the art that the present invention may find practical application in a variety of alternative contexts that have not explicitly been addressed herein. Finally, the illustrative processing steps performed by a computer-implemented program (e.g., instructions) may be executed simultaneously, or in a different order than described above, and additional processing steps may be incorporated. The invention may be implemented in hardware, software, or a combination thereof. When implemented partly in software, the invention may be embodied as a set of instructions stored on a computer-readable medium. The scope of the invention is defined by the claims and their equivalents.

What is claimed is:

1. A personal digital device with an in-built memory, the device comprising:

executable software stored in the in-built memory of the device,

the software operative with a processor of the device,

without requiring the user to install any additional software components,

the software enabling the portable electronic device to display a document on a screen of the device,

wherein the document was retrieved from a content server on the Internet,

wherein the document was caused to be displayed on the screen of the device by utilizing at least a portion of the software,

wherein the software is configured to provide a highlighting service to enable the user to create a highlight on at least one object of the document,

wherein the highlighting service is visually invoked by a user initiated action,

wherein the software and/or the highlighting service is further configured to store the highlight, or a reference to the highlight, or a set of data associated with the highlight, created by the user in a storage connected to the Internet along with a unique reference to the user who created the highlight, and a unique reference to the document that the highlight was created on, and

wherein, upon being invoked, the software and/or the highlighting service is furthermore configured to automatically retrieve at least one of a previously stored: (i) a highlight, (ii) a reference to a highlight, or (iii) a set of data associated with a highlight.

2. The device of claim **1**, wherein the at least one highlight created by the user includes a portion of text.

3. The device of claim **1**, wherein the storage connected to the Internet is at a server and shared by multiple users of the highlighting service using multiple distinct devices.

4. The device of claim **1** further comprising database management logic for managing the storage, wherein the storage is at least one of: the built-in memory of the device and/or the storage connected to the internet.

5. The device of claim **4**, wherein

the database management logic stores a plurality of highlights, a plurality of object references corresponding to the highlights, or a plurality of sets of data associated with the highlights in a database, wherein

the database management logic recalls a subset of highlights, a plurality of object references corresponding to the highlights, or a plurality of sets of data associated with the highlights, from the database, and

provides the same, or another subset so that the document can be manipulated in a manner that will display one or more highlights when the document is displayed.

6. The device of claim **1**, wherein the document is an eBook.

7. The device of claim 1, wherein the software is a browser add-on which enables highlighting functionality for a web browser application executing on the device.

8. The device of claim 1, wherein the device includes displaying a collaboration panel which allows one or more users to collaborate on the document.

9. The device of claim 1, wherein the executable software is received, in whole or in part, from a server connected to the Internet.

10. A computer-implemented method for highlighting functionality on a digital handheld device without requiring a user of the device to install a special software component, the method comprising the steps of:

serving a document to the device, wherein the document was obtained from a content server connected to the Internet; and

displaying the document on a screen of the device by executing a software operative with a processor of the device,

wherein the software enables activation of the highlighting functionality on the device, and the highlighting functionality is visually invoked in response to an action initiated by the user,

wherein the highlighting functionality enables a user of the device to:

create a highlight on a portion of the document;

store the highlight, or a reference to the highlight, or a set of data associated with the highlight, created by the user in a memory with a unique reference to the user who created the highlight, and a unique reference to the document that the highlight was created on; and

automatically restore a highlight on a portion of the document, upon the highlighting functionality being invoked.

11. The method of claim 10 further comprising network and communications logic for transmitting at least one of the highlight or an associated set of data of the highlight to at least one network connected server.

12. The method of claim 11, wherein the at least one network connected server includes a page saving logic, wherein the page saving logic enables a user to save a copy of a portion of the document on the at least one network connected server or on another network connected server.

13. The method of claim 11, wherein a URL generating logic generates a unique URL to associate with the newly created highlight.

14. The method of claim 10, wherein the software, in whole or in part, is fetched from a server connected to the Internet.

15. The method of claim 10, further comprising the step of providing an interface that enables a plurality of users to collaborate on a set of previously created highlights.

16. A non-transitory computer-readable medium having stored thereon, a set of computer-executable instructions for causing an eBook to enable highlighting, the instructions executing on a processor of a portable electronic book device, wherein the device has executable software stored in a memory of the device for performing the steps of:

enabling a highlighting service on a currently displayed document,

wherein the currently displayed document was obtained from a content server connected to the Internet,

wherein the highlighting service is visually invoked upon an action initiated by the user, and enables a user of the currently displayed document to generate at least one new highlight,

wherein the highlighting service is configured to store the new highlight, or a reference to the new highlight, in a storage unit, and

wherein the highlighting service upon being invoked, is configured to automatically retrieve at least one previously generated highlight.

17. The medium of claim 16, further comprising the step of enabling a plurality of users to collaborate and view a multiplicity of previously generated highlights on a set of one or more documents.

18. The medium of claim 17, further comprising the step of enabling a subset of the multiplicity of users to collaborate on a subset of the multiplicity of highlights using a set of Internet connected devices.

19. The medium of claim 16, wherein the executable software is stored in one or more parts at the following: on the device, and on at least one or more servers connected to the Internet.

20. The medium of claim 16, further comprising instructions for database management logic wherein the storage unit is comprised of a combination of a built-in memory of the device and/or a storage connected to the Internet.

21. The medium of claim 16, further comprising instructions for displaying a collaboration panel that allows one or more users to collaborate on the document.

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EXHIBIT 8

Description

RELATED APPLICATIONS

The present application is a continuation-in-part of U.S. patent application Ser. No. 15/042,977 filed on Feb. 12, 2016. U.S. patent application Ser. No. 15/042,977 was a continuation-in-part of U.S. patent application Ser. No. 13/831,331 filed on Mar. 14, 2013 (now issued as U.S. Pat. No. 9,292,617). U.S. patent application Ser. No. 13/831,331 was a continuation-in-part of Ser. No. 11/766,786 filed on Jun. 21, 2007 (now issued as U.S. Pat. No. 8,910,060). U.S. patent application Ser. No. 11/766,786 claimed benefit of U.S. Provisional Patent Application with Ser. No. 60/815,467 filed on Jun. 22, 2006. Further Ser. No. 11/766,786 incorporated U.S. patent application Ser. No. 11/766,669 (now issued as U.S. Pat. No. 8,661,031), the contents of all of these applications are hereby incorporated by reference. Further, U.S. Pat. No. 7,966,623 filed on Jun. 22, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 7,844,891 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 7,966,623 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,156,178 filed on Mar. 5, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,352,573 filed on Jun. 22, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,661,031 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. Pat. No. 8,910,060 filed on Jun. 21, 2007 is also incorporated by reference into the present application. U.S. patent application Ser. No. 11/766,791 is also incorporated by reference into the present application.

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FIELD

The present invention relates generally to computer network-based information retrieval techniques. More particularly, the present invention relates to methods and systems that enable a user to mark-up or highlight information (such as text or images) on an internet document for better visibility, later retrieval and/or sharing with one or more other users.

BACKGROUND

A wealth of information is available on the Internet, and particularly that segment of the Internet referred to generally as the World Wide Web. However, despite vast improvements in search engines, finding the particular information that one is interested in can still be a challenging and time-consuming task. Perhaps even more frustrating is the lack of tools available to enable a user to retrieve previously searched for and discovered information. In the realm of search and retrieval, search engines aid in the search but leave much to be desired when it comes to information retrieval.

One common mechanism used for information retrieval is referred to generally as a bookmark. A bookmark is a mechanism or function enabling a user to save a copy of a uniform resource locator (URL). For example, if a user finds an article of interest at URL, http://www.interesting-article.com/article 12345.htm, the user can save the URL as a bookmark so that at a later time the user can simply select (e.g., with a mouse or other pointing device) the bookmark to reload the document associated with the URL. The user might choose to categorize the bookmarks. Traditionally, bookmarks have been facilitated by a web browser application and stored at the computer on which the web browser application resides. However, more recently online bookmarking services have provided users with a way to store bookmarks online, making the bookmarks accessible from any network-connected computer.

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As a means of information retrieval, bookmarks have several shortcomings. One problem with bookmarks is they provide little, if any, explanation or context as to what it is about the associated document that may be significant. For instance, a bookmark simply associates a URL with a document. A user may generate a bookmark for a particular web page because of a single passage in an article, or a particular blog entry on a web page with many blog entries. When the user retrieves the web page at a later time by means of selecting the bookmark, the user may not be able to remember what it is that is significant about the web page and why he or she saved the bookmark in the beginning.

Another problem with bookmarks is that they become stale, and in some cases expire, over time. For instance, an internet document may change between the time that a user generates a bookmark, and then revisits the associated web page at a later time. In some cases, a URL, may expire altogether. For example, the document associated with the URL may be removed from the server such that the URL returns an error message indicating the document no longer exists.

Another problem with bookmarks is they are a less than ideal mechanism for sharing information. For example, to share information with a bookmark facilitated by a web browser application, a user must generally email the bookmark to another user. When the recipient receives the email including the bookmark, the user must select the link—if the bookmark is implemented as a user-selectable link—in order to initiate loading of the associated document in the user's web browser application. Often the bookmark is not a user-selectable link. In this case, the user must copy-and-paste, or type, the corresponding URL of the bookmark into the address bar of the web browser application. The copy-and-paste method sometimes does not work because of special characters, such as carriage return and line feed characters, in the URL. In any case, the additional steps required to access the relevant document are often viewed as burdensome. Often it is only a subset of individuals who end up going through the process necessary to load the relevant document. When the relevant document is finally loaded into and displayed by the recipient's web browser, the recipient of the bookmark may not appreciate the relevance of the associated document.

Realizing that many email recipients will not follow embedded links, some senders have devised a strategy wherein they copy-paste the relevant portions of an internet document into the body of an email. However, this simply shifts the copy-paste workload from the recipient to the sender. Furthermore, on the receiving end, the context is lost and credibility is in doubt as to the authenticity of the pasted material with respect to the original content. Thus, improved tools for information retrieval and collaboration are needed.

SUMMARY

A method, apparatus, and system for enabling a user to selectively make one or more highlights in a currently displayed document on a mobile, handheld, eBook reader, or similar device are disclosed. The user-generated highlights are persistent over user-initiated cursor control activities as well as persistent over reading sessions. Furthermore, the highlighting functionality can be invoked without downloading and installing any custom software components, and without explicitly generating a user account.

Other aspects of the invention are described below in connection with the description of the figures.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate an implementation of the invention and, together with the description, serve to explain the advantages and principles of the invention. In the drawings,

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FIG. 1 illustrates an example of a computer network environment including a highlighting or highlighter server, according to an embodiment of the invention;
FIGS. 2 and 3 illustrate data flow diagrams showing an example of the data flow between an end-user's computing device, a highlighter server, and a content provider according to an embodiment of the invention;
FIG. 4 illustrates a logical block diagram showing an example of the logical components of a highlighter server according to an embodiment of the invention;
FIG. 5 illustrates an example of a registration procedure by which an unregistered user converts to a registered user, according to an embodiment of the invention;
FIG. 6 illustrates an example of a user interface object, referred to herein as a highlighter panel, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention;
FIG. 7 illustrates an example of a user interface object, referred to herein as a highlighter toolbar, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention;
FIG. 8 illustrates an example of a user interface object, referred to herein as a collaboration panel, which enables a user to share an internet document containing user-generated highlights with another user, according to an embodiment of the invention;
FIG. 9 illustrates an example of an email with user-generated highlights, according to an embodiment of the invention;
FIGS. 10 through 12 illustrate various user interface features of a highlighter web portal, according to an embodiment of the invention;
FIG. 13 illustrates an example of a web page providing a snippet of code for adding a highlighter roll to a web page, according to an embodiment of the invention; and
FIG. 14 illustrates an example of a web page with a user interface object referred to herein as a highlight roll, according to an embodiment of the invention.

DETAILED DESCRIPTION

Reference will now be made in detail to an implementation consistent with the present invention as illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings and the following description to refer to the same or like parts. Although discussed with reference to these illustrations, the present invention is not limited to the implementations illustrated therein. Hence, the reader should regard these illustrations merely as examples of embodiments of the present invention, the full scope of which is measured only in terms of the claims following this description. In particular, many of the various aspects and features of the invention are most easily understood by those skilled in the art when conveyed as user interface features. However, those skilled in the art will appreciate that the user interface elements illustrated and described are examples, and the invention is not to be limited by those user interface features specifically illustrated in the drawings.

Consistent with one embodiment of the invention, a highlighting service is provided by a highlighting server, which enables a user to manipulate the user interface of a web browser application executing at the user's client device to selectively highlight the text of an internet document received from a content provider's server. In so doing, any portions of text highlighted by the user are captured by the highlighter server. For example, the portion of text highlighted by the user is communicated to the highlighter server, where it is stored. Accordingly, the highlighter server enables a user to easily retrieve the highlighted text at a later time. In addition,

the highlighter server enables a user to annotate and share the highlighted text, along with the internet document, with other users.

The highlighter server enables a user to selectively highlight text via a conventional web browser interface, for example, by controlling a customizable cursor with a pointing device (e.g., a mouse, trackball, joystick). The manner in which the user manipulates the user interface to selectively highlight text is similar to the way in which a user would highlight text in any number of conventional text editing applications. For example, the user may simply press and hold a button of a pointing device while manipulating a cursor with the pointing device to select a particular portion of text. However, in accordance with an embodiment of the invention and in contrast to conventional text editing applications, the highlighter server enables a user to highlight the text and graphics of internet documents served from a content provider server with the conventional controls and features of a web browsing application, without installing any special software. Moreover, any highlights made by the user are communicated in near-real-time to the highlighter server without any need for any additional user interaction. Consequently, any highlights the user makes are automatically saved at the highlighter server and can easily be viewed during a subsequent web browsing session. In an alternative embodiment of the invention, the highlights could be saved on a local device.

In addition to enabling a user to easily retrieve highlighted portions of internet documents, the highlighter server facilitates various methods of sharing highlighted portions of text with other users. For instance, in one embodiment, after a first user has made a highlight to a particular internet document, a subsequent user viewing the same document with the highlighting service invoked will optionally be able to see the first user's highlight(s). Similarly, if multiple users previously made highlights to a particular document, a subsequent user will be able to see all user's highlights. To avoid becoming overwhelmed with highlights, a user, and/or the system, can configure the settings of the highlighting service such that only highlights made by user-selected persons (including oneself), or those persons who are a member of a user-selected and/or system-selected group, are displayed. In yet another aspect, a user may generate and send an email to another user such that the email includes the highlighted portions of text and/or the entire document as highlighted.

It will be appreciated by those skilled in the art that various architectures may be used to implement a highlighting service consistent with the invention described herein. Furthermore, although many functions described herein are attributed to either a client or a server, those skilled in the art will appreciate that in alternative embodiments of the invention, a function attributed herein to a server, may in fact be implemented on, or provided by a client device. Similarly, a function described herein as being provided by a client, may be provided by a server in an alternative embodiment of the invention. Other aspects of the invention will become apparent from the descriptions of the drawings that follow.

Although the present invention is described herein primarily in the context of a highlighting service, those skilled in the art will recognize a wide variety of other applications that are consistent with the general spirit of the invention. For instance, consistent with another embodiment of the invention, a client web browser directs a request for a document (either directly, or indirectly) to a content provider hosting the document. The request may be directed to an intermediate server or intercepted by an intermediate server, which in turn, forwards the document request on to the content provider server. The content provider server sends the requested internet document to the intermediate server where it is modified in some manner “on the fly”. That is, the requested internet document is modified by the intermediate server in near

real time, before it is forwarded on to the requesting client web browser. Accordingly, the requesting client web browser receives a modified copy of the requested document, without making any actual modification to the document stored on the content provider server. In an alternative embodiment of the invention, the requested document is communicated from the intermediate server to the client web browser in its original unmodified form, along with a code module. At the client web browser, the code module is executed or interpreted, causing the client to modify the original document in some manner.

The modification to the document made by the intermediate server in near real time (or the client) may include overlaying an object on the document, changing a portion of the document, altering the references in a document, adding an additional element or component to the internet document, or alternatively, removing or deleting a portion or element of the originally requested document. For example, in one embodiment of the invention, a portion of the document may be highlighted. In another embodiment of the invention, an advertisement may be added or deleted from the originally requested document. In yet another embodiment of the invention, a textual portion of the document may be italicized, underlined, made bold, or have its color changed. In any case, the document is being modified by the intermediate server.

System Architecture

FIG. 1 illustrates an example of a computer network environment including a highlighter server **10**, according to an embodiment of the invention. As illustrated in FIG. 1, the highlighter server **10** is communicatively coupled by means of a network **12** to several content provider servers (e.g., **14**-*a* and **14**-*b*). In addition, the highlighter server **10** is communicatively coupled by means of a network **12** to a user's client computer **16**. It will be appreciated by those skilled in the art that the computing environment illustrated in FIG. 1 is but one example, and a wide variety of computer and network configurations might be used without departing from the spirit of the invention. For instance, the user computer, although depicted in FIG. 1 as a desktop computer, may be any of a wide variety of computing devices, including but not limited to: desktop computer, laptop computer, personal digital assistant, or mobile handset. Furthermore, although in the examples provided herein the highlighter server **10** is shown as a separate component, in one embodiment of the invention the highlighting service executing on the highlighter server **10** may reside and execute on a content provider server (e.g., **14**-*a*, or **14**-*b*), or a server under the control of a content provider.

In general, the user utilizes a web browser application on client computer **16** to access and display content in the form of internet documents or web pages, which are stored in whole or in part on various content providers (e.g., **14**-*a* and **14**-*b*). In one embodiment of the invention, a user invokes the highlighter service by prepending the address or uniform resource locator (URL) of the highlighter server **10** prior to the URL of an internet document that the user is requesting. In one embodiment of the invention, a bookmarklet, which is a button with associated code that typically resides on a web browser toolbar, automatically prepends the address of the highlighting server to the address of a document, thereby invoking the highlighting service.

Consistent with an embodiment of the invention, once a highlighter session has been invoked, a user has at his or her disposal a variety of tools for highlighting text and objects of an internet document. For instance, in one embodiment of the invention, a highlighter tool panel will appear in the web browser window and provide the user with a selection of controls enabling various features and functions of the highlighting service. In another embodiment of the invention, various controls may be provided by a highlighter toolbar. In any case, the basic function of the

highlighting service is to enable a user to highlight an object (e.g., text, graphical images, etc.) of an internet document, such that the highlighted portion(s) can easily be recalled at a later time and/or shared with other users. Accordingly, as the user highlights an object, the highlighted object is communicated to the highlighter server **10** where it is stored. In one embodiment of the invention, the highlighted object (e.g., a selection of text) is stored along with any annotations or comments the user may have added, as well as a date and time indicating when the highlight was generated. The highlighted object and its associated data are stored in such a manner as to be associated with the user who generated the highlight. This allows the user to recall and view highlights from previous highlighting sessions. Furthermore, as each highlight is associated with a source (e.g., a person responsible for generating the highlight), users can configure the highlighting service to display highlights on a per user basis. That is, a user may configure the settings of the highlighting service to display only the highlights of a particular user, or group of users. For instance, as described in greater detail below, users may create and subscribe to groups. Accordingly, a user may configure the highlighting service to display highlights on a per group basis, such that only highlights from those members of a particular group are displayed. Similarly, an embodiment of the invention may enable a user to build out a social network, for example, by specifying who the user considers to be direct contacts. Accordingly, the user may configure the highlighting service to display highlights of all users within the user's social network, up to a certain degree of separation (e.g., a friend of a friend).

The highlighting service enables the user to generate highlights with conventional web browser controls. For example, in one embodiment of the invention, the user generates a highlight by simply pressing a button of a cursor control device (e.g., mouse) and dragging the cursor across an object before letting up on the button. The highlights generated by a user, according to an embodiment of the invention, are persistent over user-initiated cursor activity as well as web browsing sessions. That is, after making a highlight, each user-generated highlight remains even after the user clicks on a different portion of the internet document. Similarly, a user can navigate away from an internet document or web page on which the user has made a highlight, and the next time the user revisits the web page, the highlight will be visible so long as the user has invoked a highlighting session via the highlighting service.

In one embodiment of the invention, the highlighting service is enabled without requiring the user to download and install a client-side software application. That is, the highlighting service is enabled via the standard functions of the web browser application on the client side. For instance, in one embodiment of the invention, asynchronous JavaScript and extensible markup language (XML), referred to as Ajax, are used to provide an interactive user experience via a conventional web browser application, without the need for downloading and installing any customized software. Alternatively, the highlighting service may be enabled by a browser plug-in or browser extension. For instance, a user may download and install a software application that when executed, works in conjunction with a web browser application to enhance the functionality of the web browser application—in this case, enabling the highlighting service. In yet another embodiment, the highlighting service may be enabled by a stand alone software application. That is, the client side functionality of the highlighting service may be attributed to a daemon, or some other stand alone software application.

FIGS. 2 and 3 illustrate a data flow diagram showing an example of the data flow between an end-user's computing device, a highlighter server, and a content provider according to an embodiment of the invention. As illustrated in FIG. 2, a highlighting session is invoked when, at step **1**, a user directs an initial request via the user's web browser application to the highlighting

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service hosted by the highlighter server **10**. The initial request, although directed to the highlighter server **10**, includes the address of a desired internet document. For instance, the address of the highlighter server **10** may be prepended to the beginning of the address of the requested document such that the request is sent to the highlighter server **10**, but includes the address of the desired document hosted at the content provider **14**-*a*. For instance, such a request may be of the form: "http://roohit.com/http://www.news.com/article123.htm".

Once the highlighter server **10** receives the initial request, the highlighter server **10** analyzes the initial request and extracts the address of the requested document. For example, the address extraction logic **22** (shown in FIG. 4) extracts the address of the requested internet document (e.g., "www.news.com/article123.htm") from the request received by the highlighter server **10** (e.g., "http://roohit.corti/http://www.news.com/article123.htm"). Accordingly, at step **2**, the forwarding logic **22** (shown in FIG. 4) of the highlighter server **10** forwards the document request to the content provider that is hosting the requested document. At step **3**, the content provider responds by communicating the original requested document to the highlighter server **10**.

Once the highlighter server **10** receives the original document from the content provider, the highlighter server **10** analyzes the original document and modifies various object references within the original document. For instance, in one embodiment of the invention, the highlighter server **10** includes reference modification logic **24** for modifying various references by prepending the highlighter server address to the existing addresses in the reference. Consequently, when an object is requested, the web browser application will direct a request to the highlighter server **10** for those objects with modified references. Finally, at step **4**, the modified document is communicated from the highlighter server **10** to the client computer **16**.

As illustrated in FIG. 3, when the client computer **16** receives the modified document, it attempts to request the various objects that are referenced in the document. Accordingly, at step **5**, for those objects stored directly at the content provider, the client computer **16** sends object requests to the content provider **14**-*a*. Requests sent directly to the content provider **14**-*a* are serviced by the content provider **14**-*a*, and at step **6** one or more objects are returned to the client computer **16**. For those objects which have had their reference previously modified (e.g., by prepending the address of the highlighter server), the client computer directs one or more object requests to the highlighting service (e.g., at step **7**). In turn, at step **8**, the highlighting server **10** communicates a request for the object to the content provider **14**-*a*. The content provider communicates the object to the highlighting server at step **9**, and finally, at step **10** the object is communicated to the client computer **16** which displays the internet document in a web browser window.

Referring again to FIG. 2, if a user requests a document that has previously been highlighted (e.g., by the requesting user, or another user), the highlighter server **10** will modify the original document by inserting the necessary object reference to ensure that the highlight(s) are displayed when the document is rendered by the user's web browser application. For instance, the reference modification logic **24** of the highlighter server **10** will modify the object reference in the original document, such that the modified object reference will cause the particular object (e.g., selection of text) to be highlighted when displayed by the web browser application. In another embodiment of the invention, a portion of executable or interpretable code sent from the highlighter server **10** to the client enables the client to query the highlighter server **10**. Accordingly, the query is processed by the highlighting service, and if a particular document has been previously highlighted, the necessary data is sent to the client's web browser application to

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show the highlights. In one embodiment of the invention, the query indicates the URL of the currently displayed document. The highlighting service determines whether the URL is associated with any previously generated user highlights. If so, the highlighting service determines if the current user (e.g., the user viewing the document) has configured the highlight filtering mechanisms to display any of the previously generated user highlights. If the user has optionally selected to view highlights from one or more users who have previously generated a highlight on the currently displayed page, then the highlighting service will communicate the appropriate information to the client so that the highlight will be displayed.

FIG. 4 illustrates a logical block diagram showing an example of the logical components of a highlighter server **10** according to an embodiment of the invention. As illustrated in FIG. 4, the highlighter server **10** includes network and communications logic **20** for communicating data with various other computing devices, including client computers and content provider servers. In one embodiment of the invention, the network and communication logic **20** implements the necessary network and communication protocols, such as transfer control protocol and the internet protocol (TCP/IP) for sending and receiving data over a network, such as the public Internet. A variety of other well known communication and networking protocols may be used in accordance with an embodiment of the invention.

In one embodiment of the invention, the highlighter server **10** includes address extraction and forwarding logic **22** as well as reference modification logic **24**. As described above, when the highlighter server **10** receives a request for a document hosted by another content provider, the address extraction and forwarding logic **22** extracts the document address of the requested document from the initial request received at the highlighter server **10**, and then forwards the extracted document address to the proper content provider **14**. Similarly, the reference modification logic **24** modifies object references in original documents received from content provider servers prior to sending the object references in the modified document to the client computer. Object references are modified, for example, to ensure that certain object requests are directed to the highlighter server, and other requests are directed directly to the content provider.

In one embodiment of the invention, the highlighter server **10** includes page caching logic **31**. Accordingly, when a client requests a document hosted at a content provider, the highlighter server **10** may check its cache to determine if the highlighter server **10** has a current copy of the document stored locally. If so, the highlighter server **10** does not need to forward the request to the content provider, but instead, the highlighter server **10** can retrieve and serve the document from its cache.

In one embodiment of the invention, the highlighter server **10** includes user account registration logic **26**. As described in greater detail below, in one embodiment of the invention, a user can access and use the highlighting service in one of two modes—as a registered user, or as an unregistered user. As an unregistered user, the user is not prompted to enter or provide any personal information or set-up a username and/or password. The highlighting service allows unregistered users to save and share highlights. However, if an unregistered user would like to become a registered user, the user account registration logic **26** facilitates the generation of a user account while preserving all previously generated highlights. That is, the highlight service will merge an unregistered user's data into a registered account, thereby preserving any configuration settings and highlights the user made as an unregistered user.

In one embodiment of the invention, the highlighter server **10** includes page saving logic **28** and unique URL generating logic **30**. In certain situations, a user may desire to save a copy of an internet document. For instance, many internet documents—such as web pages on news sites,

and blogs—are dynamic and constantly changing. Accordingly, a user may want to highlight a portion of an internet document and then save a copy of the entire page, for example, to share with another user or group of users. The page saving logic **28** enables a user to save a copy of an entire page. The unique URL generating logic **30** generates a unique URL to associate with the saved page. Therefore, to share an internet document that has been saved by the highlighting service, a user can share the unique URL generated by the unique URL generating logic **30** and associated with the saved page.

When a highlight is made on a page that tends to be dynamic (e.g., changes frequently)—for example, such as a blog site, or a news site—highlight insertion logic **29** analyzes the content of the page to determine if, and where, a previously made highlight is to be inserted. For example, as new blog entries are posted to a blog site, thereby forcing old entries to appear positioned lower on the web page, the highlight insertion logic **29** intelligently analyzes the web page to determine where to position a previously made highlight.

In one embodiment of the invention, users can display and view highlights on a per user and/or a per group basis. Accordingly, the highlighting server **10** includes user and group subscription logic **32** to manage the creation of, and subscription to, user- as well as system-defined groups. For instance, a web-based interface to the highlighting service may provide a user with an option to create a group, and invite others to join the group. Similarly, a user may search for and join previously created groups. The group subscription logic **32** facilitates and manages such tasks. Once a member has subscribed to a particular group, the member can configure the highlighting service to display highlights from all members of the group. In one embodiment, a user may subscribe to receive emails embedded with new highlights from users in a particular group. Accordingly, the user may subscribe to receive emails on a real-time basis showing all new highlights as they are made by users. Alternatively, a user may subscribe to receive a daily, weekly, or some other time period, email summary showing relevant highlights for that time period.

In one embodiment of the invention, the highlighting server **10** includes a web server module **34**. The web server module **34** not only serves documents that have been forwarded from other content providers, but the web server module **20** also provides an administrative interface to administrators of the highlighter server **10**, and a user interface to various features provided by the highlighter server **10**. For example, in one embodiment of the invention the web server component **34**, in conjunction with the administrative interface logic **38** facilitates web-based administration and configuration of the highlighter server **10**. Similarly, the web server component **34**, in conjunction with the user interface logic **36**, facilitates web-based configuration and setup of various features of the highlighting services provided by the highlighter server **10**. A storage device stores internet documents **44** associated with the user interface logic **36** and administrative interface logic **38** provided by the web server module **34**.

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In one embodiment of the invention, the highlighter server **10** includes database management logic **40** for managing a data repository. Accordingly, as the highlighter server **10** receives portions of text and images from internet documents as such portions are highlighted by users, the database management logic **40** stores the highlights in a database **42**. Similarly, the database management logic **40** recalls the highlights from the database **42**, and provides the associated data to the web server module **34** so that the document can be manipulated (either at the server or at the client) in a manner that will display highlights when the document is rendered by a client's web browser.

In one embodiment of the invention, the highlighter server **10** includes an email server **39**. Accordingly, the email server **39** facilitates the generation and sending of emails by users. For example, via one or more user interface objects, a user may be prompted to enter or select an email address in order to send a copy of a currently displayed internet document—including any user-generated highlights—to another user. The email server not only facilitates the sending of the email, but also the generation of the email and the formatting of any highlighted objects. Accordingly, an email recipient will receive an email with an embedded internet document showing any user generated highlights made by the user. The recipient need not download any special software in order to view the sent internet document and associated highlights.

Another component of the highlighter server **10** is a search server **41**. In one embodiment of the invention, the highlighter server **10** provides a search interface where users can search for relevant internet documents and highlights. For example, a user may perform a keyword search, where the keyword is searched for in a portion of an internet document that has been previously highlighted by a user, or within an annotation or comments section associated with a particular highlight. The search server **41** may facilitate searches by user or by group, such that a user can enter the name or email address of a particular user as a search parameter. Furthermore, a user may search for content based on tags—a user-assigned, relevant keyword or term associated with or assigned to a piece of information, like a picture, article, or video clip, thus describing the item. Other aspects of the various search features are described in greater detail in related, co-pending U.S. patent application Ser. No. 11/766,669, entitled, "Method and System for Determining the Significance and Relevance of an Internet Document, or a Portion Thereof", filed on Jun. 21, 2007, which is hereby incorporated herein by reference.

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One embodiment of the highlighter server **10** includes an application programming interface (API) module **37**. In various configurations of the highlighting server, the API module provides a common interface for communicating messages with third-party add-ons, as well as software agents. For example, in one embodiment of the invention, a third-party search engine may communicate API messages to the highlighter server, requesting information about various documents. Accordingly, the search engine may utilize an API to communicate those messages with the highlighter server **10**. Similarly, third-party tools and applications that utilize highlights, and the wide variety of information and data associated with highlights, may make requests of the highlighting server **10** via the API module **37**.

Those skilled in the art will appreciate that various alternative components and logic may be included in a particular implementation of the highlighter server **10**, without departing from the spirit of the invention.

User Registration

FIG. 5 illustrates an example of a registration procedure by which an unregistered user **50** converts to a registered user **52**, according to an embodiment of the invention. Advantageously, users need not download and install any customized software on a client computer in order to establish a highlighting session via the highlighter server **10**. For instance, in one embodiment of the invention, asynchronous JavaScript and extensible markup language (XML), referred to as Ajax, are used to provide an interactive user experience via a conventional web browser application, without the need for downloading and permanently installing any customized software. Moreover, in one embodiment of the invention, a user need not register with the service, or establish a user account, in order to use the highlighting service. When a user has not registered with the service, a unique identifier **52** is sent from the highlighter server **10** to the client **16** executing the web browser application. The unique identifier, for example, may be

an HTTP cookie that uniquely identifies the user. Accordingly, when a user selects a portion of an internet document with a highlighter cursor during a highlighting session, that portion of the document highlighted by the user is communicated to the highlighter server, associated with the unique identifier, and then stored at the highlighter server **10** (e.g., as user data **54** in FIG. 5). If, during a subsequent browsing session, a request is made for the same document, and the request includes the user's unique identifier, the highlighter server **10** will associate the highlighted portion of text with the unique identifier and manipulate the requested document to cause the highlight(s) to appear when the document is displayed in the user's web browser window. If a user decides to register with the highlighting service, the unique identifier (e.g. the HTTP cookie) is associated with a new human readable identifier, such as a user-selected username and password, and all previously generated highlights will be preserved and transferred to the user's registered account, as illustrated by user data **56** in FIG. 5

User Interface (Highlighter Panel/Toolbar/Collaboration Panel)

FIG. 6 illustrates an example of a user interface object, referred to herein as a highlighter tool panel **60**, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention. According to one embodiment of the invention, the highlighter tool panel **60** appears as a separate window within the browser display window, and may have a variety of display modes. For instance, as illustrated in FIG. 6, the highlighter tool panel **60** is in maximized display mode and all controls are visible. In addition to a maximized mode, the highlighter tool panel **60** may also have a minimized mode. In the minimized mode, a subset of the controls may be accessible. As with conventional graphical user interface windows, a set of buttons **62** at the top of the window provide a mechanism for switching between maximized and minimized modes, and closing the tool panel window. In one embodiment of the invention, the highlighter panel may even have an invisible mode.

In one embodiment of the invention, the tool panel **60** includes an address bar **64** which provides a separate mechanism for navigating the World Wide Web and displaying internet documents hosted by different content providers. For instance, by typing an address in the text entry box of the address bar **64** displayed in the highlighter tool panel **60** and selecting the “GO” button, a user can download and display an internet document associated with the address entered. Note that the address entered in the text entry box need not include a reference to the highlighting service. The entered address will automatically be manipulated to invoke the highlighting service. If, for instance, an additional address needs to be prepended to the address entered by the user in order to invoke the highlighting service with the requested internet document, the tool panel **60** will automatically manipulate the address accordingly.

In addition to an address bar **64**, in one embodiment of the invention the highlighter tool panel **60** includes an email address bar **66** where a user can enter an email address and share the currently displayed document, including any user-generated highlights in the document, with another user. For example, the email address bar **66** enables a user to enter one or more email addresses, and then select the “SEND” button to instantly send an email of the currently displayed internet document. If the currently displayed document includes user-generated highlights (e.g., highlighted text **80** and **82**) those highlights will be displayed with the document in the email. Advantageously, the internet document (including any highlights) is embedded within an email such that the user need not install any special software in order to view the document and any included highlights.

In one embodiment of the invention, the highlighter tool panel **60** includes a text entry box for adding a user to a list of users whose highlights can be selectively toggled on or off. For instance,

by inputting an email address (e.g., Jane_doe@yahoo.com) or username of another user in a text box, and pressing the add button **67**, the user can be added to a list of users and groups **76** whose highlights can be selectively shown or hidden. Adding a user in this manner may also add the user to one or more drop down menus, selection boxes, or scroll windows (e.g., scroll window **98** in FIG. 8) used for quickly addressing emails.

A variety of other controls may be included with the highlighter tool panel **60** according to an embodiment of the invention. For example, in one embodiment of the invention, the tool panel **60** includes a button (e.g., the "PUT PEN DOWN" button **68**) that toggles the cursor between a standard cursor, and a highlighter pen cursor. When the active cursor is in highlighter pen mode, for example, the highlighting tool is active. This enables a user to select text or an object using a click and drag method, by which a user simply selects an object to highlight by dragging across an object while depressing a cursor control (e.g., mouse) button. When the active cursor is not in highlighting mode, a user may select an object (e.g., a portion of text or an image) and then press a button (not shown) to generate a highlight of the selected text. In one embodiment of the invention, the tool panel **60** includes a button or link (e.g., the "PAST HiLites" button **70** in FIG. 6) that causes the web browser application to display a web page containing a list of past highlights made by the user. The list of past highlights may include a summary or excerpt from the previous highlights as well as a link to the full document from which the highlights are from. In addition, the past highlights web page may show additional information about each highlight, including but not limited to: the time and date the highlight was generated, the number of people that have viewed or selected the highlight, the address of persons with whom the user has shared the highlight, the number of other users who have highlighted the object, and/or annotations made by the user.

In one embodiment of the invention, a color palette **72** is included with the tool panel **60**. By selecting a color from the color palette, the user can manipulate the color of the active highlighter cursor, and ultimately the color of any highlights the user makes. This provides each user with the ability to create customized highlight color coding schemes. Accordingly, a user may mark-up different sections of an internet document with different colors, such that each different color indicates additional information about the highlighted text. For instance, green highlighted text may support a particular proposition or indicate a positive treatment of a particular subject, while red highlighted text may indicate a negative treatment of the same subject. Those skilled in the art will appreciate the wide variety of user-customized color coding schemes that might be implemented according to an embodiment of the invention.

In one embodiment of the invention, the highlighter tool panel **60** includes a user/group filtering mechanism **74** which enables a user to select whose highlights should be displayed in a particular internet document on a per user or per group basis. For instance, referring again to FIG. 6, by selecting the "SHOW GROUP 1 HiLites" box in the tool panel **60**, all highlights made by members of "GROUP 1" will be displayed to the user in the currently displayed internet document. Similarly, by selecting the "SHOW JANE DOE's HiLites" box, the user can control the display of highlights such that Jane Doe's highlights are also shown in the presently displayed document. Furthermore, in one embodiment of the invention, the filtering mechanism can be configured on a per document and/or per domain basis, such that a user can specify whose highlights the user would like to see when viewing particular documents, or documents from particular domains.

In one embodiment of the invention, the highlighter tool panel **60** includes a configuration setting that enables the user to display highlights that represent the consolidation of all user-

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generated highlights on a page. For example, when the check box illustrated in FIG. 6 next to the option "SHOW CONSOLIDATED COLOR INTENSITY SPECTRUM" with reference **77** is checked, the highlighting service will analyze all of the user-generated highlights associated with a particular internet document or web page. Rather than show individual highlights, the highlighting service causes portions of the internet document to be highlighted in particular colors that represent the frequency with which that portion of the document has been highlighted. For example, when the check box **77** is selected, a portion of the document that has been highlighted by many users may be shown in red. Accordingly, under this scenario, a red highlight on a particular object indicates that the particular object has been highlighted by many users. A less frequently highlighted portion of the document may be highlighted in another color. In another embodiment, the particular shade of the color may indicated the frequency with which the portion of the document has been highlighted. In one embodiment of the invention, enabling the color intensity spectrum view of highlights automatically disables the user/group view of highlights. That is, when viewing highlights in the color intensity spectrum mode, user level highlights and/or group level highlights may not be shown.

Many of the configuration settings illustrated in FIG. 6 may also be accessed and adjusted via a highlighter web portal. For example, the highlighting service provides a web-based user interface where users can set certain configuration parameters to default settings. Accordingly, when a user invokes the highlighting service without the highlighter tool panel, any configuration settings previously established via the highlighter web portal will be active by default.

FIG. 7 illustrates an example of a user interface object, referred to herein as a highlighter toolbar **78**, which enables a user to, among other things, highlight text and objects on an internet document, according to an embodiment of the invention. Similar to the highlighter tool panel **60** illustrated in FIG. 6, the highlighter toolbar **78** is a user interface object that provides a variety of controls and features associated with the highlighting service. In one embodiment of the invention, the highlighter toolbar includes the control objects described above in connection with the highlighter tool panel **60**, including but not limited to: an address bar for navigating, an email address bar for sharing the currently displayed document with any user-generated highlights, a button to toggle the active highlighter cursor on and off, a button to access previously generated highlights, a button to access previously saved pages, a color palette to change the color of highlights, and a mechanism for selecting and filtering the highlights that are displayed on an internet document on a per user or per group basis. In addition, in one embodiment of the invention, the toolbar may include third-party tools. For example, the toolbar may provide one or more control objects enabling the user to quickly and easily gain access to a third-party tool, service, or application.

FIG. 8 illustrates an example of a user interface object, referred to herein as a collaboration panel **90**, which enables a user to share an internet document containing user-generated highlights with another user, according to an embodiment of the invention. As illustrated in FIG. 8, in one embodiment of the invention the collaboration panel **90** is a mouseover window or box that appears when a user moves the highlighter cursor **92** over a particular highlight **80** in the currently displayed internet document. The collaboration panel **90** includes a text entry box **94** where a user can provide a comment about the particular highlighted object. In addition, the collaboration panel **90** includes an email address bar **96** where the user can enter one or more email addresses. Also, the collaboration panel includes a scroll window **98** with a list of other users and groups with whom the user may be associated. By checking a box, or otherwise selecting another user or group, the user can quickly address an email to the user or group. After

selecting and/or entering the names of those persons/groups to receive an email, the user simply selects the "SEND" button **100** to send a copy of the currently displayed internet document, including any highlighted objects (e.g., highlights **80** and **82**), embedded within an email. In one embodiment of the invention, the email server **39** of the highlighter server **10** will generate and send the email to the selected recipients. Accordingly, the recipient of such an email will be able to view the entire internet document including any highlights without downloading any additional software and/or requesting any additional internet documents. In an alternative embodiment of the invention, a link to a highlighted document may be provided in the email.

In one embodiment of the invention, the collaboration panel also provides a view of any comments that a user may have entered about a particular highlight. For instance, if a user sends a comment to another user, the other user may view the comment by simply putting the highlighter cursor over the highlight. If more than one comment is associated with a particular highlight, the comments will be displayed in order such that a user can follow along with a virtual conversation based on an exchange of comments. Just as a user may filter the highlights that are displayed, in one embodiment of the invention, comments may optionally be filtered so that a user only sees comments from particular users, or groups, of interest.

FIG. 9 illustrates an example of an email with user-generated highlights, according to an embodiment of the invention. As illustrated in FIG. 9, an email generated and sent via the collaboration panel includes a header portion **106** where the comment **108** that was entered in the text box **94** of the collaboration panel **90** is displayed. This provides the recipient of the email with additional information and context as to what is relevant about the document as a whole, and the highlight **80** in particular.

In one embodiment of the invention, the header portion **106** of the email also includes an address bar **110**, where a user can enter the address or URL of a web site or document, and begin a highlighting session. For instance, by entering a URL in the address bar **110** of the email, and then pressing the "START HiLiting" button **112**, a web browser window will open and the requested document will be displayed along with a highlighter tool panel **90**.

Highlighter Web Portal

FIG. 10 illustrates a top level page (e.g. a home page) for a highlighter web portal, according to an embodiment of the invention. As illustrated in FIG. 10, in one embodiment of the invention, the home page of a highlighter web portal includes a text entry box **114** where a user can enter a URL or document address to begin a highlighting session. For example, by simply typing in the address of an internet document in the text entry box **114** and then pressing the "START HiLiting" button, a user invokes a highlighting session with the document corresponding with the address entered.

FIG. 11 illustrates a contact management page of a highlighter service, according to an embodiment of the invention. As illustrated in FIG. 11, in one embodiment of the invention, the highlighting service includes a contacts list where a user can enter and maintain personal and/or business contact information. In one embodiment, as a user shares highlights via email, the email addresses of the recipients will automatically be saved into the user's contact list. In addition, as users are added as contacts, the email addresses of those users will automatically populate certain user interface objects, such as the scroll window **98** in FIG. 8.

In one embodiment of the invention, the contact management interface may also provide a mechanism for users to build out or define a social network. For example, a user may specify which contacts to include in his or her social network. Accordingly, several of the features

described herein may be configured on the basis of one's social network. For example, a user may select to see all highlights from any member within his social network.

FIG. 12 illustrates a HiLites summary page, according to an embodiment of the invention. In one embodiment of the invention, a highlighter web portal provides the user with easy access to a list of all previously generated highlights of a particular user (including oneself). In addition to showing a thumbnail **115** of the document which the highlights are from, the list also includes a variety of icons enabling the user to take several actions in connection with a selected highlight, or a comment associated with a highlight. For instance, a user may rank or rate a highlight, a comment, and/or an internet document containing a highlight or comment. In one embodiment, a user may select a link to see more highlights or comments from a particular user. In addition, the user may select a button or link enabling the user to subscribe to a particular user's highlighting activities. Accordingly, as the particular user makes new highlights, a copy of such highlights and/or the internet document containing the highlights may be sent to the user in real-time, or on a predetermined or user-configured periodic schedule.

FIG. 13 illustrates an example of a web page providing a snippet of code **120** for adding a user interface object, referred to herein as a highlighter roll, to a third-party web page, according to an embodiment of the invention. The snippet of code shown in FIG. 13 can easily be added to another web page by copying and pasting the code. The highlighter roll, once embedded in another web page, will display highlights of a particular user. The code snippet **120** is generated automatically in response to user-specified parameters **122** that are provided at one or more user interface input mechanisms (e.g., drop down lists, text entry boxes, and so on). Accordingly, the highlighter roll can be configured to show a particular number of previous highlights, scroll highlights up or down, scroll at variable speeds, and display the highlights in various user-selected formats. In one embodiment of the invention, the highlighter roll may query the highlighting service to receive a predetermined number of the most recent highlights by a user, by a group, or by everyone, or based on a particular topic, or by a grouping of particular websites or URLs. By inputting various configuration parameters, a user can display a preview of what the highlighter roll will look like when embedded in a third-party web page.

FIG. 14 illustrates an example of a web page with a user interface object referred to herein as a highlight roll **126**, according to an embodiment of the invention. As described in connection with FIG. 13, the code for displaying a highlight roll **126** may be automatically generated by a highlighting service web portal, such that a blogger or another web author can easily copy and paste the code into his or her own web page, thereby adding the highlight roll **126** to his or her web page and enabling the display of user-generated highlights. As illustrated in FIG. 14, the highlight roll has a title, “JANE DOE'S HIGHLIGHTS:” as well as a text box **126** where highlights are displayed. The title is easily configurable by providing a configuration parameter as described in connection with FIG. 13. In various embodiments of the invention, multiple highlights may scroll up or down in the text box. In one embodiment of the invention, the highlights will automatically and dynamically update as a user continues to highlight new objects on new internet documents. Accordingly, a highlight roll **126** provides an excellent means of displaying a user's recent web activity, to the extent that a user's highlighting activity represents his or her web activity. A highlight roll may be particularly useful on blogging websites, but also on news websites, corporate websites, social networking websites, and others.

In one embodiment of the invention, a query is used to select the particular highlights from a highlighting service that are to be displayed in a highlight roll. Accordingly, the selection parameters for the query may be configured by a user, such that a wide variety of highlight

characteristics can be used to select the particular highlights to be displayed in a highlight roll. In one embodiment of the invention, a highlight roll may be configured to display highlights from a particular user, or group of users. In another embodiment, the highlight roll may be configured to randomly query the highlighting service for user-generated highlights. In yet another embodiment, the highlight roll may be configured to query the highlighting service for highlights that were made on a particular internet document, website, or group of websites. In another embodiment of the invention, the highlight roll may be configured to query the highlighting service for highlights that contain a particular key word or words. In yet another embodiment, the highlight roll may be configured to query the highlighting service for highlights of images.
In one embodiment of the invention, a highlight roll may be used on a blog website. For example, a blogger may use a highlight roll to enhance the content on his or her blog site. Alternatively, the highlight roll may take the place of a blog altogether. For example, by displaying a highlight roll in place of a blog, a user may author blog entries by simply highlighting portions of other internet documents, and then providing comments about the highlighted portions of the document. Those skilled in the art will appreciate that a highlight roll may be used in other contexts not specifically addressed herein.
The foregoing description of various implementations of the invention has been presented for purposes of illustration and description. It is not exhaustive and does not limit the invention to the precise form or forms disclosed. Furthermore, it will be appreciated by those skilled in the art that the present invention may find practical application in a variety of alternative contexts that have not explicitly been addressed herein. Finally, the illustrative processing steps performed by a computer-implemented program (e.g., instructions) may be executed simultaneously, or in a different order than described above, and additional processing steps may be incorporated. The invention may be implemented in hardware, software, or a combination thereof. When implemented partly in software, the invention may be embodied as a set of instructions stored on a computer-readable medium. The scope of the invention is defined by the claims and their equivalents.